NUEXCO

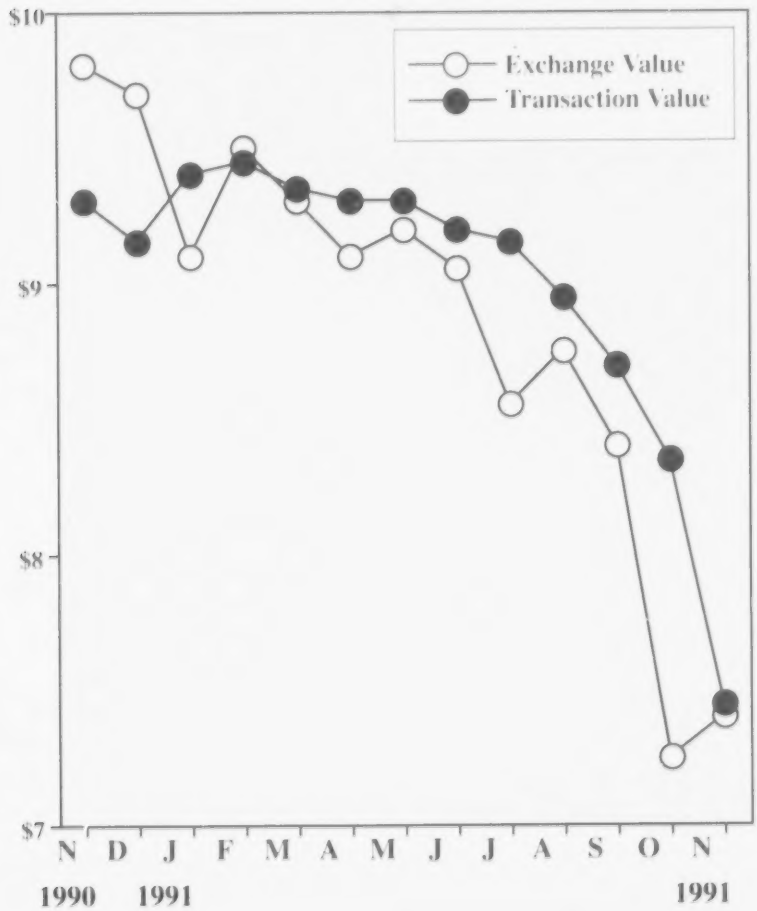
Monthly Report

December 1991 **Number 280**

International Trade Commission Conference 13

Preliminary 1991 Market Review 16

World Enrichment Requirements to 2005 23



NUEXCO

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While most market participants expected prices to remain depressed in 1991, nearly all were surprised or dismayed that U_3O_8 prices dropped to almost $7 per pound. Uranium market volume was considerable in 1991, thus far totalling 26.6 million pounds equivalent U_3O_8, but significantly lagging 1990's record volume. The conversion and loan markets remained comparatively stable, but enrichment sales rose significantly, as did the SWU Value during 1991.

- **World Uranium Enrichment Requirements to 2005** 23

Total projected enrichment requirements to 2005 equal 38.6 million SWU. Despite the fact that the enrichment market already is characterized by production overcapacity, additional capacity is still planned for operation by the late 1990s. Consequently, supply will remain abundant and production costs will become an increasingly important factor in a competitive market.

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To Our Readers

Australian Office Address Change

Please note that the CONCORD/NUEXCO office in Sydney, Australia has moved to new facilities. The new address and phone numbers are reflected on the inside front cover, and also are shown below for your convenience.

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Market Values Summary

NUEXCO Market Values	This Report November 30, 1991	Last Report October 31, 1991	12 Months Ago November 30, 1990
EXCHANGE VALUE [1]	**$7.40** / lb equivalent U_3O_8	$7.25	$9.80
UF_6 VALUE [2]	**$22.75** / kg U as UF_6	$22.75	$28.75
LOAN RATE [3]	**3.5%** / annum	3.5%	3.5%
CONVERSION VALUE [4]	**$1.55** / lb U as UF_6	$1.55	$1.45
SWU VALUE [5] **(0.3 % tails assay)**	**$68** / SWU	$68	$51
TRANSACTION VALUE [6]	**$7.45** / lb equivalent U_3O_8	$8.35	$9.30
Transactions	**22**	22	16
Months	**3**	3	3
Millions of Pounds	**4.9**	4.6	3.0

DEFINITIONS

1 The **Exchange Value** is NUEXCO's judgment of the price at which transactions for significant quantities of natural uranium concentrates could be concluded as of the date indicated.

2 The **UF_6 Value** is NUEXCO's judgment of the price at which spot and near-term transactions for significant quantities of natural uranium hexafluoride could be concluded as of the date indicated.

3 The **Loan Rate** is NUEXCO's judgment of the annual interest rate at which uranium loans could be concluded as of the date indicated.

4 The **Conversion Value** is NUEXCO's judgment of the price at which spot and near-term transactions for significant quantities of conversion services could be concluded in the secondary market as of the date indicated.

5 The **SWU Value** is NUEXCO's judgment of the price at which spot and near-term transactions for significant quantities of enrichment services could be concluded as of the date indicated.

6 The **Transaction Value** is a weighted average price of recent natural uranium sales transactions. The calculation is based on prices paid in:

a) Transactions closed within the previous three month period for which delivery is scheduled within one year of the transaction date;

b) At least ten transactions;

c) Transactions involving a sum total of at least 2 million pounds equivalent U_3O_8.

DERIVATIONS AND COMMENTS

- All **Market Values** are expressed in terms of US$.
- All **Market Values** are based on:
  - Data from recently completed transactions.
  - Data from pending transactions.
  - Firm bids to buy or borrow, and firm offers to sell or lend.
  - Prices purchasers or rates borrowers have expressed a willingness to pay, but for which NUEXCO is not aware of firm bids to buy or borrow and prices sellers or rates lenders have expressed a willingness to accept, but for which NUEXCO is not aware of firm offers to sell or lend.
- Prices associated with deliveries under old or renegotiated contracts or other than arm's-length transactions are not included in the determination of these **Market Values**.
- In the determination of prices, NUEXCO does not consider charges for transportation other than that customarily provided by suppliers.
- The prices of services or materials delivered under long-term contracts with primary suppliers are not considered in the determination of the listed values.
- For the **SWU Value**, NUEXCO converts SWU prices at varying tails and product assays to equivalent SWU prices at a tails assay of 0.30 weight-percent U^{235} and a product assay of 3.0 weight-percent U^{235}, assuming feed costs corresponding to the NUEXCO **Exchange Value** and **Conversion Value** determined as of the same date.
- In calculating the **Transaction Value**, NUEXCO does not account for the price of uranium delivered in connection with contracts which call for "market price" mechanisms. This exclusion applies particularly to contracts in which delivery prices are expressed as a function of future **Exchange Values** or any other indeterminate variable. Also excluded from the calculation are any other transactions in which the delivery price is defined in such a way that it can not currently be determined.
- The sample time for the **Transaction Value** is extended as necessary to satisfy the minima for the number of transactions and quantity of material. Other currencies are converted to US dollars using conversion rates in effect on or near the transaction date.

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MARKET REVIEW

NOVEMBER MARKET REVIEW

(as of November 30, 1991)

OVERVIEW

After falling to new lows in early November, market prices firmed late in the month with the Exchange Value rising slightly to $7.40 per pound U_3O_8. Low prices brought several discretionary buyers into the market, which stalled the market decline, at least temporarily. Competition among suppliers for limited UF_6 demand kept prices level; the UF_6 Value was unchanged at $22.75 per kgU as UF_6. Twelve near-term concentrates sales totalling almost three million pounds equivalent U_3O_8 were reported, but no near-term natural UF_6 transactions were reported. Six long-term natural uranium sales were reported, totalling over 2.4 million lbs equivalent U_3O_8, four of these sales occurred earlier in 1991.

November's transactions bring total year-to-date market volume up to 26.6 million pounds equivalent U_3O_8 in 103 transactions (**Table 1**). This total includes transactions previously not reported that occurred earlier in the year. While the number of transactions approaches 1990's level at this time (108), market volume for 1991 lags last year's record volume by over 12.9 million pounds.

Table 1
NEAR-TERM URANIUM SALES SUMMARY

	November 1991		Year-to-Date	
	No. of Sales	Volume [1]	No. of Sales	Volume [1]
Concentrates	12	3.0	73	18.0
Natural UF_6	0	0.0	18	4.9
EUP	1	0.3	12	3.8
Total [2]	**13**	**3.2**	**103**	**26.6**

[1] Million pounds equivalent U_3O_8
[2] Due to independent rounding, columns may not equal total.

A preliminary review and analysis of the uranium market in 1991 is included in this Report beginning on page 16.

The Loan Rate remained unchanged at 3.5 percent per annum, as did the Conversion Value, which remained $1.55 per lb U as UF_6. No loans or conversion transactions were reported.

The SWU Value also was unchanged at $68 per SWU. Two near-term SWU sales totalling almost 200 thousand SWU were reported. Three long-term SWU transactions also were reported, with delivery of over 2.1 million SWU scheduled during the period 1994-2001.

URANIUM AND CONVERSION

After reaching new lows early in the month, uranium market prices firmed as several discretionary buyers entered the market, thus halting further price declines. The **Exchange Value** climbed to **$7.40** per pound U_3O_8 on November 30—a $0.15 increase from its October 31 level. Numerous sellers still were competing for sales at the end of November, albeit less aggressively than earlier in the month.

As the month came to a close, both buyers and sellers were uncertain which direction the market was headed in the near-term. As a result, transactions were concluded both above and below the November 30 Exchange Value, as the numerous market participants reacted differently to factors such as timing, origin, delivery location, and the potential effects of the recently filed anti-dumping petition against the Soviet Union. The range of prices was fairly narrow, as eleven of November's twelve concentrates sales took place within five percent of the November 30 Exchange Value. Furthermore, this range narrowed considerably during the latter half of the month.

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Although this range narrowed, uncertainty still exists in the marketplace. However, the uncertainty has not been great enough to cause buyers and sellers to leave the market. Buyers may be hesitant, but with prices near record lows, they may feel it is better to purchase now, than to risk potential price increases in the future. Sellers are equally uncertain, but may feel it is better to sell now than to wait and find that prices have once again declined. Thus, most participants are not withdrawing from the market, and the result is an active, but cautious, marketplace. The twelve near-term concentrates transactions reported from November total almost 3.0 million pounds equivalent U_3O_8 for delivery within the next six months. Intermediaries sold to six producers and six utilities, with most of the transactions involving US entities.

* * *

The **UF_6 Value** was unchanged at **$22.75** per kgU as UF_6. Unlike past months, when the UF_6 market mirrored the concentrates market, competition among suppliers for the limited UF_6 demand kept prices level. No near-term natural UF_6 transactions were concluded, although two sales of enriched UF_6 were reported. These EUP sales totalled over 800 thousand pounds equivalent U_3O_8, although one of the sales occurred earlier in 1991.

Table 2
NEAR-TERM SUPPLY/DEMAND SUMMARY

	Active Supply[1]	Active Demand[1]
• Uranium (thousand lbs equivalent U_3O_8)	5,030	2,925
• Supply/Demand Ratio:	1.7	
• Loan (thousand lbs equivalent U_3O_8)	6,020	0
• Conversion (thousand lbs U as UF_6)	880	1,500
• SWU (thousand SWUs)	400	0

[1] Supply and Demand tables in the Market Review section of this Report provide details for each category.

In the long-term market, two sales were reported, one involving concentrates, the other natural UF_6. These sales by European intermediaries totalled over 300 thousand pounds equivalent U_3O_8 for delivery in 1993. In addition, four long-term concentrates sales that occurred earlier this year were reported: Australian and Canadian producers sold over 2.1 million pounds U_3O_8 for 1992-1996 delivery.

* * *

The **Transaction Value** fell $0.90, to **$7.45** per pound U_3O_8 based on 22 transactions over 3 months involving 4.9 million pounds equivalent U_3O_8. November's high volume of low-priced sales brought the Transaction Value down to a record low. The Transaction Value previously had never dropped below $8 per pound since its first publication on May 31, 1976.

* * *

As would be expected with record low price levels, **active uranium demand** showed a net increase at month end of 1.3 million pounds, having risen to **2.9** million pounds equivalent U_3O_8. Active demand during much of November was considerably higher, but many buyers concluded purchases near the end of the month, thus lowering the final total.

Active uranium supply decreased by 2.3 million pounds, to **5.0** million pounds equivalent U_3O_8. Despite the climb in demand, ample supply was still available to meet buyers' needs, and the **supply/demand ratio** only declined to **1.7**.

* * *

Despite continued downward pressure, the **Loan Rate** remained at **3.5** percent per annum. No loans were reported from November. Loan demand remains at zero (**Table 2**) for the seventh consecutive month.

* * *

The **Conversion Value** remained at **$1.55** per pound U as UF_6. No conversion transactions were reported,

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MARKET REVIEW

as the spot conversion market has been quiet for the past few months. The lack of UF_6 demand has contributed to the calm, as most recent purchases involved concentrates, which were converted under long-term contracts.

ENRICHMENT SERVICES AND ENRICHED URANIUM PRODUCT

The **SWU Value** was unchanged at **$68** per SWU. Compared to mid-1991, the enrichment market has quieted. Little new demand has emerged recently and activity is not expected to increase until after the first of the year. Only two near-term sales involving SWU contained in EUP were reported: the sales totalled less than 200 thousand SWU, with one of the sales occurring earlier in 1991. Three long-term enrichment transactions were reported in which utilities purchased a total exceeding 2.1 million SWU for delivery during 1994 through 2001. Only two buyers were evaluating near- and long-term SWU offers at month end.

Table 3
ENRICHMENT PRICES
(November 30, 1991)

Prices	This Month Report 280	Last Month Report 279	12 Months Ago Report 268
NUEXCO SWU Value ($US per SWU)	68	68	51
US DOE SWU prices: ($US per SWU)			
USEC	121.50[1]	121.50[1]	117.85[2]
AFC	153.00[3]	153.00[3]	153.00[3]
Requirements	157.00[3]	157.00[3]	157.00[3]
Incentive Price (IP2)	104.67[4]	104.67[4]	100.68[5]
Calculated worth of enriched UF_6[6]: ($US per KgU as UF_6)			
2.0 % U^{235}	209	208	206
2.5 % U^{235}	295	292	284
3.0 % U^{235}	382	380	364
3.5 % U^{235}	472	469	446
4.0 % U^{235}	564	560	528
4.5 % U^{235}	656	652	612

[1] Effective 10/1/91.
[2] Effective 10/1/89 to 9/30/91.
[3] Effective since 10/1/84.
[4] Provisional IP2 for FY92: Effective 10/1/91 to 9/30/92, for up to 30% of annual requirements.
[5] IP2: Effective 10/1/90 to 9/30/91, for up to 30% of annual requirements.
[6] Calculated using the NUEXCO Exchange Value, Conversion Value, SWU Value and 0.30 % U^{235} tails assay.

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RECENT TRANSACTIONS

Uranium Sales [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity (thousand pounds equivalent U_3O_8)	Price Within Percentage Range [2] of Current Exchange or UF_6 Value	Buyer	Seller	Remarks
5278A	1992	101-300	See Remarks	Intermediary	Intermediary	Contained in EUP
5280	1991	301-600	90-97	Utility	Intermediary	
5281	1992	50-100	90-97	Utility	Intermediary	
5285A	1991	600-1,000	See Remarks	Utility	Utility	Contained in EUP–Occurred earlier in 1991
5286	1992	301-600	90-97	Producer	Intermediary	
5287	1992-1996	601-1,000	See Remarks	Utility	Producer	Occurred earlier in 1991.
5288	1992-1996	301-600	See Remarks	Utility	Producer	Occurred earlier in 1991.
5289	1992-1996	601-1,000	See Remarks	Utility	Producer	Occurred earlier in 1991.
5290	1992-1996	301-600	See Remarks	Utility	Producer	Occurred earlier in 1991.
5291	1993	101-300	Above 110	Utility	Intermediary	UF_6
5292	1992	50-100	98-102	Producer	Intermediary	
5293	1992	101-300	90-97	Utility	Intermediary	
5297	1993	101-300	Above 110	Producer	Intermediary	
5298	1991	101-300	90-97	Producer	Intermediary	
5299	1991	101-300	103-110	Producer	Intermediary	
5300	1992	101-300	103-110	Utility	Intermediary	
5301	1991	301-600	90-97	Producer	Intermediary	
5302	1991	101-300	90-97	Utility	Intermediary	
5303	1992	50-100	103-110	Producer	Intermediary	
5304	1992	301-600	90-97	Utility	Intermediary	

R means that NUEXCO either does not know, or that NUEXCO has restricted that information to protect client or source confidentiality.

[1] Transactions listed are not limited to those in which NUEXCO was involved, but also include others of which NUEXCO is aware. NUEXCO may delay reporting some transactions in order to protect proprietary information.

[2] The ranges *Below 90, 90-97, 98-102, 103-110, Above 110,* represent percentages (rounded to whole numbers) of the appropriate current Exchange Value or UF_6 Value. The endpoints of each range are included within that range.

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MARKET REVIEW

RECENT TRANSACTIONS

Natural Uranium Loans [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity (thousand pounds equivalent U_3O_8)	Price Within Percentage Range [2] of Current Loan Rate	Borrower	Lender	Remarks
No loans of natural uranium are reported						

Conversion Sales [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity (thousand pounds of U equivalent)	Price Within Percentage Range [2] of Current Conversion Value	Buyer	Seller	Remarks
No sales of conversion are reported						

Enrichment Sales [1]

NUEXCO Transaction Number	Delivery Period	Approximate Quantity [3] (thousand SWU)	Price Within Percentage Range [2] of Current SWU Value [4]	Buyer	Seller	Remarks
5278B	1992	50-100	See Remarks	Intermediary	Intermediary	Contained in EUP
5285B	1991	101-300	See Remarks	Utility	Utility	Contained in EUP–Occurred earlier in 1991.
5294	1996-2000	1,001-3,000	R	Utility	R	
5295	1994	50-100	See Remarks	Utility	Intermediary	Base Escalated
5296	1996-2001	301-600	See Remarks	Utility	Intermediary	Series of Fixed Prices

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[2] The ranges *Below 90, 90-97, 98-102, 103-110, Above 110*, represent percentages (rounded to whole numbers) of the appropriate current Market Value. The endpoints of each range are included within that range.

[3] If tails assay is unknown or unspecified, NUEXCO's calculation of SWU quantity assumes 0.30 % tails assay.

[4] Prices are usually normalized to 0.30 % tails assay. When prices and SWU values are expressed as discounts from a reference price (e.g., X dollars less than DOE's USEC base price at time of delivery), the percentage price range is based on the discounted prices, not on the reference price.

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SUPPLY AND DEMAND

Uranium Supply

NUEXCO Project Number	Quantity (Thousand Pounds equivalent U_3O_8) Spot or Near-term [1]	Intermediate or Long-term [2]	Delivery Period	Remarks
AVAILABLE TO PURCHASE:				
ACTIVE				
90-1307	330	—	1991	
91-1502	500	—	1991	
91-1505	1,000	—	1991	
91-1506	500	—	1991	
91-1507	500	—	1991	
91-1511	260	—	1991	UF_6
91-1512	785	—	1991	UF_6
91-1503A	500	3,500	1991-1993	UF_6/e
91-1241	655	650 per year	1992-1996	
91-1268*	—	1,000 per year	1992-2001	
TOTAL	**5,030**			
INACTIVE	**4,430**			
AVAILABLE TO LOAN:				
ACTIVE				
90-1057A*	310	—	—	UF_6
91-1084	3,900	—	—	U_3O_8
91-1174	1,000	—	—	U_3O_8
91-1219	260	—	—	U_3O_8
91-1220	325	—	—	UF_6
91-1260*	225	—	—	U_3O_8/UF_6
TOTAL	**6,020**			
INACTIVE	*None reported*			

* New or revised since last month.

[1] For delivery within one year, measured from the date of this Report. This category excludes material deliverable within one year under other than spot or near-term contracts.

[2] For delivery beyond one year, measured from the date of this Report.

Active Projects reclassified as Inactive since last month: 90-1227
Active Projects removed since last month: 91-1215, 91-1513

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MARKET REVIEW

SUPPLY AND DEMAND

Uranium Demand

NUEXCO Project Number	Quantity (Thousand Pounds equivalent U_3O_8) Spot or Near-term [1]	Intermediate or Long-term [2]	Delivery Period	Remarks
INQUIRIES TO PURCHASE:				
ACTIVE				
91-1234	25	—	1992	U_3O_8/UF_6
91-1235*	300	—	1991-1992	U_3O_8/UF_6
91-1263*	130	—	1991	U_3O_8/UF_6
91-1271*	1,570	—	1992	UF_6
91-1272*	250	—	1991	
91-1277*	650	—	1991-1992	
91-1118	—	300 per year	1993-1998	U_3O_8/UF_6
91-1184	—	350 per year	1993-1997	
91-1259*	—	200 per year	1995-1997	
91-1197	—	2,210	1992-1997	U_3O_8/UF_6
91-1227A	—	60	1992-1994	UF_6e
91-1245	—	1,000	1993-1997	
91-1255	—	2,250	1993-1996	
TOTAL	**2,925**			
INACTIVE	**1,350**			

INQUIRIES TO BORROW: *No inquiries to borrow are reported*

* New or revised since last month.

[1] For delivery within one year, measured from the date of this Report. This category excludes material deliverable within one year under other than spot or near-term contracts.

[2] For delivery beyond one year, measured from the date of this Report.

Active Projects reclassified as Inactive since last month: 91-1258
Active Projects removed since last month: 90-1304, 91-1246, 91-1249, 91-1256, 91-1257

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SUPPLY AND DEMAND

Conversion Supply and Demand

NUEXCO Project Number	Quantity (Thousand Pounds U as UF_6) Within 3 Years[1]	Beyond 3 Years[1]	Delivery Period	Remarks
AVAILABLE FOR SALE:				
ACTIVE				
91-1500	440	—	1991	
91-1501	440	—	1991	
TOTAL	**880**			
INACTIVE	*None reported*			
INQUIRIES TO PURCHASE:				
ACTIVE				
91-1264*	880	—	1992-1993	
91-1275*	620	—	1992	
TOTAL	**1,500**			
INACTIVE	*None reported*			

* New or revised since last month.

[1] Measured from the date of this Report.

Active Projects reclassified as Inactive since last month: *none*
Active Projects removed since last month: *none*

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MARKET REVIEW

SUPPLY AND DEMAND

SWU Supply And Demand

NUEXCO Project Number	Quantity (Thousand SWUs) Spot or Near-term [1]	Intermediate or Long-term [2]	Delivery Period	Remarks
AVAILABLE FOR SALE:				
ACTIVE				
90-1078D	200	—	1991	UF6e
91-1509	200	—	1992	
TOTAL	**400**			
INACTIVE	**935**			
INQUIRIES TO PURCHASE:				
ACTIVE				
90-1196	—	60 per year	1995 on	
91-1142	—	75 per year	1995-2000	
91-1066	—	320	1995-2000	
91-1152	—	2,700	1995-2001	
91-1171	—	560	1995-1998	
91-1227B	—	35	1992-1994	UF6e
91-1232	—	400	1993-1994	
91-1250	—	45	1993	UF6e
TOTAL	**0**			
INACTIVE	**265**			

* New or revised since last month.

[1] For delivery within one year, measured from the date of this Report. This category excludes material deliverable within one year under other than spot or near-term contracts.

[2] For delivery beyond one year, measured from the date of this Report.

Active Projects reclassified as Inactive since last month: *none*
Active Projects removed since last month: 91-1027, 91-1094B, 91-1187, 91-1199

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MARKET VALUES EXPRESSED IN SELECTED CURRENCIES

Exchange Value[1]

Country (currency)	per lb equivalent U_3O_8 as Concentrates			per kg U as Concentrates		
	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)
Australia (dollar)	9.43	9.21	12.70	24.52	23.93	33.02
Belgium (franc)	247.33	249.40	304.73	642.99	648.38	792.22
Canada (dollar)	8.40	8.15	11.41	21.83	21.18	29.66
EC (ecu)	5.92	5.94	7.11	15.40	15.43	18.48
Finland (markka)	32.49	29.58	35.32	84.46	76.90	91.82
France (franc)	41.03	41.43	49.81	106.67	107.72	129.49
Germany (mark)	12.02	12.13	14.76	31.26	31.52	38.38
Italy (lira)	9,052	9,084	11,088	23,533	23,617	28,828
Japan (yen)	960.91	948.33	1,307	2,498	2,465	3,399
Netherlands (guilder)	13.55	13.66	16.66	35.23	35.50	43.30
So. Africa (comm. rand)	20.72	20.54	24.55	53.87	53.39	63.82
So. Korea (won)	5,579	5,438	7,002	14,505	14,137	18,204
Spain (peseta)	764.78	762.68	935.92	1,988	1,983	2,433
Sweden (krona)	44.02	44.51	83.40	114.45	115.71	216.83
Switzerland (franc)	10.61	10.65	12.57	27.59	27.68	32.69
Taiwan (dollar)	190.62	188.50	262.09	495.58	490.05	681.37
UK (pound)	4.19	4.17	5.06	10.88	10.84	13.15
US (dollar)	7.40	7.25	9.80	19.24	18.85	25.48

Transaction Value[1]

Country (currency)	per lb equivalent U_3O_8 as Concentrates			per kg U as Concentrates		
	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)
Australia (dollar)	9.50	10.60	12.05	24.69	27.57	31.34
Belgium (franc)	249.00	287.24	289.18	647.34	746.75	751.80
Canada (dollar)	8.45	9.38	10.83	21.98	24.39	28.14
EC (ecu)	5.96	6.84	6.74	15.50	17.78	17.53
Finland (markka)	32.71	34.07	33.52	85.03	88.57	87.14
France (franc)	41.31	47.72	47.27	107.39	124.06	122.89
Germany (mark)	12.11	13.97	14.01	31.47	36.31	36.42
Italy (lira)	9,113	10,462	10,523	23,692	27,200	27,357
Japan (yen)	967.41	1,092	1,241	2,515	2,840	3,225
Netherlands (guilder)	13.64	15.73	15.81	35.47	40.89	41.09
So. Africa (comm. rand)	20.86	23.65	23.30	54.24	61.50	60.57
So. Korea (won)	5,617	6,263	6,645	14,603	16,282	17,275
Spain (peseta)	769.95	878.39	888.17	2,002	2,284	2,309
Sweden (krona)	44.32	51.26	79.15	115.22	133.26	205.77
Switzerland (franc)	10.68	12.26	11.93	27.77	31.88	31.02
Taiwan (dollar)	191.91	217.10	248.72	498.93	564.41	646.61
UK (pound)	4.21	4.80	4.80	10.96	12.48	12.48
US (dollar)	7.45	8.35	9.30	19.37	21.71	24.18

[1] As of May 1991 Report #273; calculated using currency exchange rates for the last business day of the month, as published in *The Wall Street Journal*. Prior to May 1991 Report #273; calculated using currency exchange rates published in *The Wall Street Journal* on the last business day of the month.

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NUEXCO

MARKET REVIEW

Market Values Expressed In Selected Currencies

Conversion Value[1]

Country (currency)	per lb U as UF_6			per kg U as UF_6		
	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)
Australia (dollar)	1.98	1.97	1.88	4.36	4.34	4.14
Belgium (franc)	51.80	53.32	45.09	114.21	117.55	99.40
Canada (dollar)	1.76	1.74	1.69	3.88	3.84	3.72
EC (ecu)	1.24	1.27	1.05	2.73	2.80	2.32
Finland (markka)	6.80	6.32	5.23	15.00	13.94	11.52
France (franc)	8.59	8.86	7.37	18.95	19.53	16.25
Germany (mark)	2.52	2.59	2.18	5.55	5.72	4.82
Italy (lira)	1,896	1,942	1,641	4,180	4,282	3,617
Japan (yen)	201.27	202.75	193.44	443.73	446.98	426.45
Netherlands (guilder)	2.84	2.92	2.46	6.26	6.44	5.43
So. Africa (comm. rand)	4.34	4.39	3.63	9.57	9.68	8.01
So. Korea (won)	1,169	1,163	1,036	2,576	2,563	2,284
Spain (peseta)	160.19	163.05	138.48	353.16	359.47	305.29
Sweden (krona)	9.22	9.52	12.34	20.33	20.98	27.21
Switzerland (franc)	2.22	2.28	1.86	4.90	5.02	4.10
Taiwan (dollar)	39.93	40.30	38.78	88.03	88.85	85.49
UK (pound)	0.88	0.89	0.75	1.93	1.97	1.65
US (dollar)	1.55	1.55	1.45	3.42	3.42	3.20

SWU Value And UF_6 Value[1]

Country (currency)	SWU Value at 0.30 % Tails Assay			UF_6 Value per kg U as UF_6		
	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)	This Month (Nov 30, 1991)	Last Month (Oct 31, 1991)	12 Months Ago (Nov 30, 1990)
Australia (dollar)	86.68	86.35	66.10	29.00	28.89	37.27
Belgium (franc)	2,273	2,339	1,586	760.36	782.59	893.97
Canada (dollar)	77.16	76.40	59.36	25.81	25.56	33.47
EC (ecu)	54.52	55.68	36.99	18.21	18.63	20.85
Finland (markka)	298.52	277.44	183.80	99.87	92.82	103.61
France (franc)	377.02	388.62	259.21	126.14	130.01	146.12
Germany (mark)	110.50	113.73	76.83	36.97	38.05	43.31
Italy (lira)	83,180	85,202	57,705	27,829	28,505	32,530
Japan (yen)	8,830	8,895	6,804	2,954	2,976	3,835
Netherlands (guilder)	124.52	128.08	86.68	41.66	42.85	48.86
So. Africa (comm. rand)	190.42	192.63	127.76	63.71	64.45	72.02
So. Korea (won)	51,270	51,001	36,439	17,153	17,063	20,542
Spain (peseta)	7,028	7,153	4,871	2,351	2,393	2,746
Sweden (krona)	404.52	417.43	434.04	135.34	139.66	244.68
Switzerland (franc)	97.51	99.85	65.43	32.62	33.41	36.89
Taiwan (dollar)	1,752	1,768	1,364	586.04	591.49	768.88
UK (pound)	38.47	39.10	28.32	12.87	13.08	14.84
US (dollar)	68.00	68.00	51.00	22.75	22.75	28.75

[1] As of May 1991 Report #273; calculated using currency exchange rates for the last business day of the month, as published in *The Wall Street Journal*. Prior to May 1991 Report #273; calculated using currency exchange rates published in *The Wall Street Journal* on the last business day of the month.

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RECENT DEVELOPMENTS

USA

International Trade Commission Public Conference

The staff of the International Trade Commission (ITC) held a public conference on December 3, 1991, to investigate the antidumping petition against imports of Soviet uranium filed by the Oil, Chemical and Atomic Workers International Union (OCAW) and a subgroup of the Uranium Producers of America. ITC procedure allowed the petitioners and the opposition each an hour to state their case. The purpose of the ITC investigation is to determine if injury to the domestic uranium industry has been caused by the Soviet imports. At the conference, only ITC staff were present to hear the testimony; they were allowed to interrupt with questions, but there was no cross examination. The conference was the only public opportunity to discuss the petition before the ITC. Both parties were then required to submit briefs elaborating their positions within three days after the conference. The ITC staff assembled and analyzed the issues for the Commissioners assigned to the case, who then made a preliminary determination whether to dismiss the petition or continue the investigation.

The petitioners were represented by their counsel, Valerie Slater of Akin, Gump, Hauer & Feld; their economic consulting firm, ICF Associates; their industry analyst, Dan Collier of NAC; Robert Moyer of Pathfinder Mines; Joseph Card of Uranium Resources Inc.; Dean Alexander of the OCAW; Eugene Schmitt of DOE's uranium enrichment office, as well as DOE counsel and independent counsel from Steptoe and Johnson. The petitioners emphasized two points in their presentation. They claimed there is only one uranium industry, encompassing the mining and milling companies, converters, and DOE. This claim was based on their view that the processing of uranium from U_3O_8 to UF_6 to EUP, does not change its fundamental characteristics. The second claim was that the "industry" had been injured as a direct result of Soviet uranium imports.

Testifying in opposition to the petition were NUEXCO, GNSS, and Energy Fuels, represented by Frank Fahrenkopf and Lewis Leibowitz from the legal firm of Hogan & Hartson; the economic consulting firm of Putnam, Hayes and Bartlett, Inc.; and Paula Stern, a former ITC commissioner, now an independent consultant. In refuting the petitioners' claims, Mr. Leibowitz stated that uranium is substantially transformed at different stages in the nuclear fuel cycle, that this material is traded separately, and has different uses. The opposition argued that the US uranium industry could not have been injured by Soviet imports because it is not possible to hurt an industry that has been declared "non-viable" by the US government for the last six years. An additional argument was made that the petitioners' economic consultants analyzed the world market incorrectly when they removed the Soviet uranium from consideration in the world market, as well as in the US market. Even if removed from the US market, the supply of Soviet material will still be available and will continue to impact the world price of uranium. Further, they argued that limiting Soviet imports would not help the US uranium industry because other low cost suppliers from Canada or Australia would meet any available demand. The petitioners themselves have admitted they cannot compete at today's prices, and these prices will not change simply by applying dumping duties to remove the Soviets from the US market. The final point made by those opposing the petition was that DOE has no standing to ally itself with the petitioners: it is a government entity not eligible for relief under US trade statutes. Based upon these arguments, the ITC was asked to dismiss the petition.

On December 18, the ITC commissioners made a preliminary decision that the issues merit further investigation. The procedure is now continued by the International Trade Administration of the Department of Commerce. This entity has 160 days to ascertain if, in fact, the Soviet uranium marketed in the USA was sold at less than fair market value.

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RECENT DEVELOPMENTS

INDUSTRY BRIEFS

NRC Approves Rule For Reactor License Extension

On October 15, the Nuclear Regulatory Commission (NRC) unanimously approved new regulations for 20-year license extensions of US nuclear power plants. NRC Chairman, Ivan Selin, stated that the license extension process is "tough", as it requires the operating utility to submit the results of extensive technical analyses in support of its application to operate a reactor 20 years beyond its original 40-year license.

The new regulations do not require utilities to compile and submit documentation for the current licensing basis (CLB) for the plant. The CLB includes all NRC regulations, requirements, rules, and all utility commitments to the NRC over the operating life of the reactor. While the CLB would provide the NRC with useful additional information for considering the safety of the plant's operation in the extension period, it would require the utility to submit several thousand more documents, greatly increasing the cost of the application and the time necessary for review. Inclusion of the CLB in the application also might open a plant's current operation to intervenor actions. The license renewal review process allows for public comment, but only on issues relating to operation of a plant during the 20-year extension period, not on issues concerning its current 40-year license.

Westinghouse, BNFL and ENUSA Form New European Fuel Group

In an effort to optimize their investments in production and marketing, Westinghouse, British Nuclear Fuels Ltd. (BNFL), and Empresa Nacional del Uranio SA (ENUSA) have formed the European Fuel Group (EFG). EFG has no personnel or headquarters, and required no monetary exchange for its formation. It is only a cooperative agreement among the three companies to pool their resources for the marketing, design, and manufacture of PWR fuel for the European market. Each company will separately negotiate contracts, but will assign the work to the appropriate member of EFG.

Westinghouse hopes to make gains in fuel manufacturing and related services after the recent dissolution of its agreement with Asea Brown-Boveri. BNFL hopes to gain in markets for fuels using reprocessed materials, and ENUSA hopes to break into the European market for fuel fabrication.

PRI Sells Interest In Gas Hills Uranium Project To UG Mining

Power Resources Incorporated (PRI) recently sold a 25-percent interest in its Gas Hills in-situ leach uranium project to UG Mining Inc., a US subsidiary of Urangesellschaft of Germany. The two companies then formed a joint venture to develop and manage Gas Hills production. PRI has estimated mineable reserves at the project near Douglas, Wyoming, at about 20 million pounds U_3O_8, and production is planned for 1997.

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France Opens Waste Site

ANDRA, France's national agency for the management of nuclear waste, officially opened its new FF1.2 billion Aube Storage Center for storage of low-level and medium-level wastes. The center has a capacity of one million cubic meters of short- and medium-term nuclear wastes. Plans call for the center to be filled by 2020 and have a design life of 300 years. The Aube Storage Center is intended to succeed the La Manche Storage Center which is already filled to its 0.5 million cubic meter capacity and will be closed and sealed in 1994.

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Sweden To Help Lithuania Create Nuclear Agency

The Swedish Nuclear Power Inspectorate (SKI) will lead efforts to help Lithuania establish a nuclear regulatory agency and initiate an inspection program for its RBMK (graphite- moderated, water-cooled) nuclear power plants. The program will include a probabilistic safety analysis, and a study of systems analysis, core physics, regulatory aspects, safety, and quality assurance.

Lithuania, located not far from Sweden, operates the world's two largest RBMK nuclear power plants, each rated at 1,380-MWe (net).

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Rio Algom Cancels Merger With Uranium Resources

On Wednesday November 27, Rio Algom Mining Corporation ended its merger agreement with Uranium Resources Inc. Rio Algom's primary reason given for terminating the merger was further declines in the uranium market since the agreement was announced in May 1991.

No comment was made on the effects of Canadian tax law on the decision to cancel the merger. During the past few months, possible tax law implications had been stated as the reason the merger had been delayed.

Nuclear Reactor Milestones

During the last few months, nuclear utilities around the world have announced reactor records, anniversaries, or other developments. In August, Scottish Nuclear's Hunterston B2 set a new record of 305 days of continuous operation by an advanced gas-cooled reactor. The past record was just under 273 days.

On October 17, the United Kingdom's Calder Hall 1 marked its thirty-fifth anniversary. Operated by British Nuclear Fuels Ltd., the 50-megawatt-electric (net) Magnox (graphite moderated, gas-cooled) reactor was the world's first nuclear power plant built on an industrial scale. The previous month, Japan Atomic Power Company's Tokai 1 station marked its twenty-fifth anniversary of operation. The design of this plant is based on that of the Calder Hall units.

After 24 years of operation, France permanently shut down the Chooz A 305-MWe (net) prototype pressurized water reactor (PWR) on October 30, due to high operating costs. Chooz A is owned by Société d'Energie Nucléaire Franco-Belge des Ardennes, a consortium formed by Electricité de France and Belgian utilities.

Regarding reactors that are under construction, China has delayed the start-up of Daya Bay 1 to 1993. The previous schedule called for start-up of the 900-MWe (gross) PWR in October 1992. Daya Bay 2 is scheduled to start up six months after Unit 1. The United Kingdom's first PWR, Sizewell B, is still ahead of schedule, having had its pressure vessel recently put in place.

US Nuclear Utilities Pool $50 Million for Advanced LWR Development

The US nuclear industry recently announced that it has secured more than 90 percent of the utilities' commitments toward its $50-million share of funding for development of first-of-a-kind (prototype) engineering in the advanced light water reactor (ALWR) program. Nuclear equipment vendors will contribute another $50 million after the first year of the program. These contributions by the US commercial nuclear power industry match the US Department of Energy's planned five-year infusion of $100 million into the engineering portion of the ALWR development program.

The announcement was made by Sherwood Smith (chairman of the Nuclear Power Oversight Committee, and chief executive officer of Carolina Power & Light Company) at the U.S. Council for Energy Awareness's November 1991 Nuclear Energy Forum, held in San Francisco, California.

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NUEXCO

ANALYSIS AND COMMENTARY

PRELIMINARY 1991 MARKET REVIEW

OVERVIEW

Few market participants would have predicted the events of the uranium market this past year. While most expected prices to remain depressed, nearly all participants were surprised as prices continued to fall below $8 per pound U_3O_8. In fact, as evidenced by a few transactions late this year, prices even dipped briefly below $7 per pound. The fundamental reason for the price decline is straightforward: overly abundant supply chasing limited demand. While specific events may affect the market temporarily, there cannot be a sustained price recovery until supply and demand are more in balance.

Through November 1991, market volume lagged significantly behind last year's record level (**Table 1**). While the number of 1991 transactions concluded through November approaches that of 1990 (103 vs. 108), this year's volume falls short of the 1990 quantity by 12.9 million pounds equivalent U_3O_8. The shortfall can be attributed to lower demand—the result, in large measure, of the record quantities purchased in 1990. A major factor in last year's record sales was a large volume of discretionary purchases by both utilities and producers. This year, as market prices continually dropped below expectations month after month, discretionary buyers became more cautious, each trying to anticipate a market bottom. As a result of this caution, when buyers did make discretionary purchases, the transactions usually involved smaller quantities.

The other major factor contributing to 1991's price decline was the abundance of supply. Unlike 1990 when low prices caused all but a few suppliers to withdraw from the market, in 1991 numerous suppliers continued to compete aggressively for sales even when market levels fell below $8 per pound. Supply was available from many sources, including utility, producer, and government stockpiles. Uranium inventories from Australia, Africa, Canada, China, Germany, Italy, the Soviet Union, Eastern Europe, and the USA all had an impact on the market at some time during 1991.

The spot conversion market edged up $0.10 during 1991, in a fairly quiet market. There were some supply concerns in the conversion market, but minimal demand negated any potential for a significant price increase.

The Loan Rate was unchanged throughout the year, remaining at 3.5 percent per annum. Loaned material continued to play an important role in the uranium market as utilities, producers, and other market participants sought to utilize excess inventories. Loan volume thus far in 1991 has exceeded 13 million pounds equivalent U_3O_8, a figure very nearly the same as last year's.

Table 1
NEAR-TERM URANIUM SALES
1990 versus 1991 through November

Product	1991 through November		1990 through November	
	Number of Sales	Volume (Million pounds equivalent U_3O_8)	Number of Sales	Volume (Million pounds equivalent U_3O_8)
Concentrates	73	18.0	63	23.0
UF_6	18	4.9	33	9.5
EUP	12	3.8	12	7.0
TOTAL[1]	**103**	**26.6**	**108**	**39.5**

[1] Due to independent rounding, columns may not equal total

The SWU Value rose dramatically in 1991, starting the year at $51 per SWU, and rising to $68 per SWU by October 31. Marketing efforts by several enrichment suppliers, particularly the US Department of Energy (DOE), led many buyers into the market to examine SWU supply alternatives. Consequently, during the second and third quarter of this year, a large increase in SWU demand drove prices upward. Thus far in 1991, almost 3.2 million SWU have been traded in 33 near-term transactions, compared to only 1.7 million SWU last year by this time.

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NATURAL URANIUM

Near-Term Market Activity

The NUEXCO Exchange Value ended 1990 at $9.70 per pound U_3O_8, and, to most market participants' surprise or disbelief, had fallen to $7.25 per pound by October 31, 1991. When adjusted for inflation, market prices clearly had reached an all-time low. While the market showed some volatility during the year, including the recent upturn, the Exchange Value declined steadily during most of the year: $9.70 per pound at the end of 1990; $9.30 at the end of the first quarter 1991; $9.05 at the end of the second quarter; $8.40 at the end of the third quarter; and more recently $7.25 and $7.40. Many factors have affected the market this year, yet the overriding influence is the same as it has been for the past few years: supply has overwhelmed demand.

Annual uranium consumption has outpaced actual production for much of the past decade, but producer, utility, and government inventories have filled the balance of demand. Each year some forecasts indicate that inventories will soon be drawn down, yet each year new supplies are made available to the market. Initially, large utility and producer inventories in the USA and Europe met demand; then Western government stockpiles from countries such as Germany and Italy predominated; and more recently, uranium from China, the Soviet Union, and other East European countries have reached the market. With the end of the Cold War era, uranium from nuclear weapons stockpiles throughout the world may be the next major supply source. So while many may look for a scapegoat to blame for the record low price levels, the fact remains that low-priced supply from multiple sources is driving the market. Until these inventories are drawn down or otherwise designated for particular uses, a significant and lasting price recovery is not possible.

In addition to ample supply from numerous sellers and a preponderance of discretionary demand, several other factors affected the uranium market in 1991.

The fall of the Iron Curtain—As the Soviet Union and other East European countries have moved toward market-based economies, fungible exports such as uranium have taken on an important role in a country's transition. Uranium from these countries has been marketed to the Western world since the mid-1980s and enrichment services since the mid-1970s. Like other world suppliers, these countries have turned to the spot market to supplement their long-term marketing efforts.

Further evidence of abundant supply—Recent uranium discoveries, such as that at MacArthur River in Canada, reinforced the belief that supply was plentiful and has tended to alleviate concerns regarding long-term resource availability.

Lifting of sanctions against South Africa—South Africa's progress toward ending apartheid led most countries to lift economic sanctions in 1991. While South Africa's uranium production has dropped significantly in the past decade, the country still has large remaining reserves that are once again politically acceptable on the world market. This availability further reinforces the perception of abundant long-term supply.

Increasing number of spot market participants and the increasing role of traders—Spot market sales have acquired a larger and more important share of the total uranium market in recent years. More utilities, producers, and intermediaries than ever before are active in the spot market. The increased reliance on the spot market has actually made it even more secure, since traders, brokers, and other participants now have more alternatives by which to fill buyer or seller needs, without reducing security of supply.

Anti-dumping petition against the Soviet Union—On November 8, 1991, several uranium producers with US operations filed a petition with the US Department of Commerce and the US International Trade Commission charging that uranium is being dumped in the USA by the Soviet Union. This filing coincided with a firming of the market in November caused by an influx of discretionary buyers attracted by October's record low prices. Market participants reacted differently to the filing, but many viewed the petition as just another factor in an already uncertain market.

The UF_6 market was comparatively quiet in 1991. The UF_6 Value did not decrease as steadily as the Exchange Value, although the few UF_6 transactions that transpired during the year were greatly influenced by activity in the concentrates market. With such limited activity during the year, buyers and sellers of UF_6 looked to the component markets of concentrates and conversion to get an indication

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of current UF_6 market conditions. During the first half of the year, the UF_6 Value ranged from $27.75 per kgU as UF_6 to $27.25 per kgU. During the third quarter, it ranged from $25.50 to $26.25 per kgU. By fourth quarter 1991, the UF_6 Value was $22.75 per kgU, as several suppliers competed for the very limited UF_6 demand.

Spot Market Volume

By the end of November 1991, 26.6 million pounds equivalent U_3O_8 had changed hands in 103 transactions. As shown in Table 1, this lags last years' volume by 12.9 million pounds. The bar chart in **Figure 1** shows 1991's year-to-date volume compared to total yearly volume from 1984-1990. Spot market volume this year will not surpass last year's record total of 40.1 million pounds. However, market volume has been significant thus far in December, and it is likely that total 1991 volume will surpass 1989's total of 32.3 million pounds.

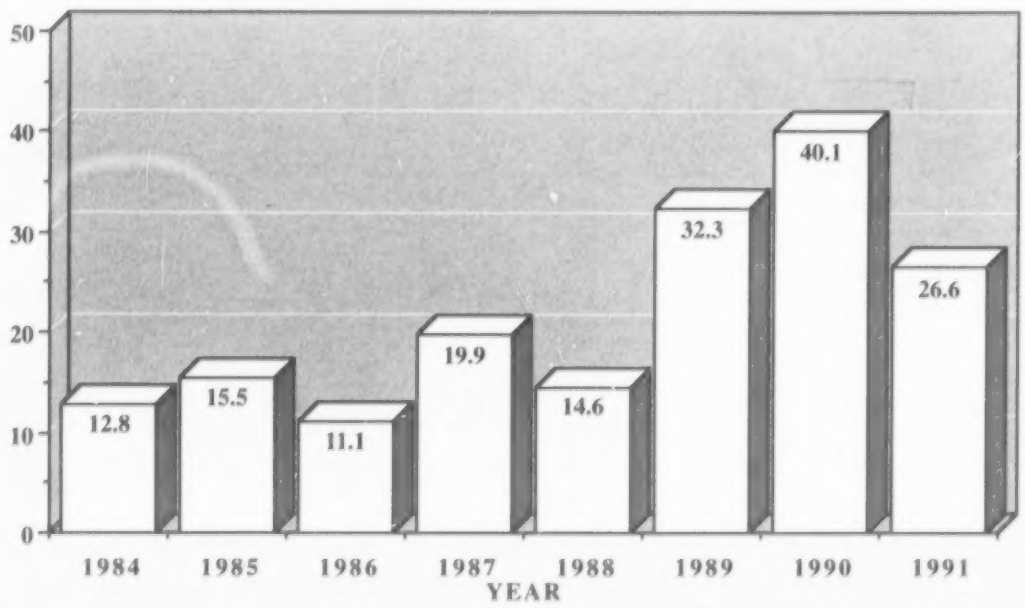
Thus far in 1991, 73 concentrates sales account for over two-thirds of total volume. UF_6 share of volume has fallen compared to 1990's share and accounts for about 18 percent of total uranium sales volume and 21 percent of natural uranium sales volume. Twelve near-term enriched uranium product (EUP) sales total almost 3.8 million pounds equivalent U_3O_8 and account for 14 percent of total market volume.

Sellers

Intermediaries have been the predominant sellers in the 1991 uranium spot market, selling over 20 million pounds equivalent U_3O_8 in 75 sales. Twelve near-term producer sales account for about ten percent of total volume, and sales by utilities, fabricators, converters, and enrichers combine for the balance.

Intermediaries' role as the dominant sellers in the market has evolved because most large supplies are held in utility or government inventories. These entities are typically

Figure 1
HISTORICAL NEAR-TERM URANIUM SALES VOLUME
(million pounds equivalent U_3O_8 – through November 1991)



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buyers who, lacking marketing expertise, tended quite naturally to turn to intermediaries for assistance in selling these inventories.

The predominance of intermediaries as sellers also can be attributed to the emergence of producers as buyers in today's market. With market prices lower than their production costs, producers often buy from intermediaries rather than producing the material themselves to fill long-term contract commitments. This not only provides more sales to intermediaries, but also increases intermediaries' relative share of total sales volume, as producers are buying, not selling.

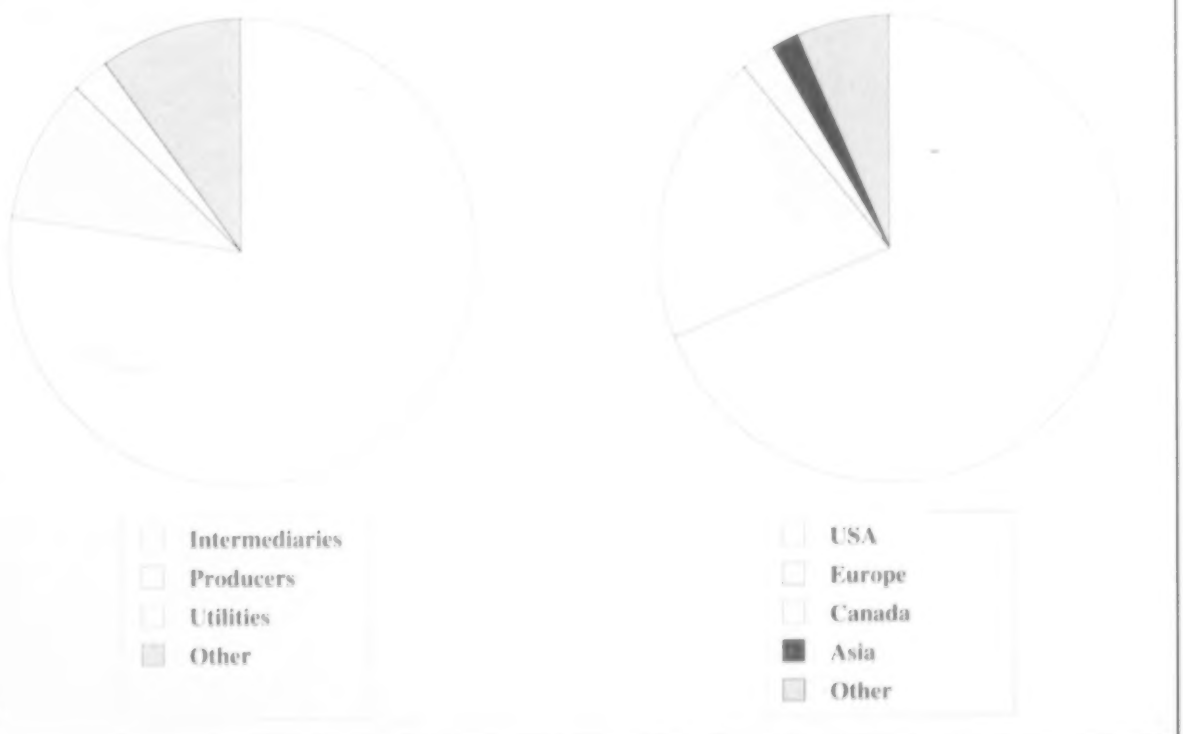
Most spot market activity in 1991 involved US entities as sellers. Nearly 70 percent of total uranium sales volume could be attributed to US-based sellers (**Figure 2**). European sellers accounted for over 20 percent of total volume, while Canadian, Asian, African, and unidentified sellers made up the balance.

Buyers

Utilities have been the most active buyers thus far in 1991, accounting for over 50 percent of all purchases. Producers have continued as important buyers, purchasing almost 28 percent of total spot market volume. As described earlier, most spot market purchases by producers were used to fill long-term contract commitments. Intermediaries accounted for about 20 percent of total volume, with fabricators and converters making up the small remaining balance (**Figure 3**).

Market activity in 1991 has been concentrated in the USA: US entities have made 70 purchases for almost 15 million pounds equivalent U_3O_8 or approximately 55 percent of total volume. European buyers account for about 21 percent of volume in 18 purchases. Canadian and Australian buyers together accounted for another 20 percent of the total. Asian, African, and unidentified buyers make up the balance. This high level of spot market activity in

Figure 2
1991 SELLERS BY TYPE AND ORIGIN



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the USA is not unusual, given that US utilities typically have placed less reliance on long-term contracts than their counterparts in Europe or Asia.

Long-Term Market Activity

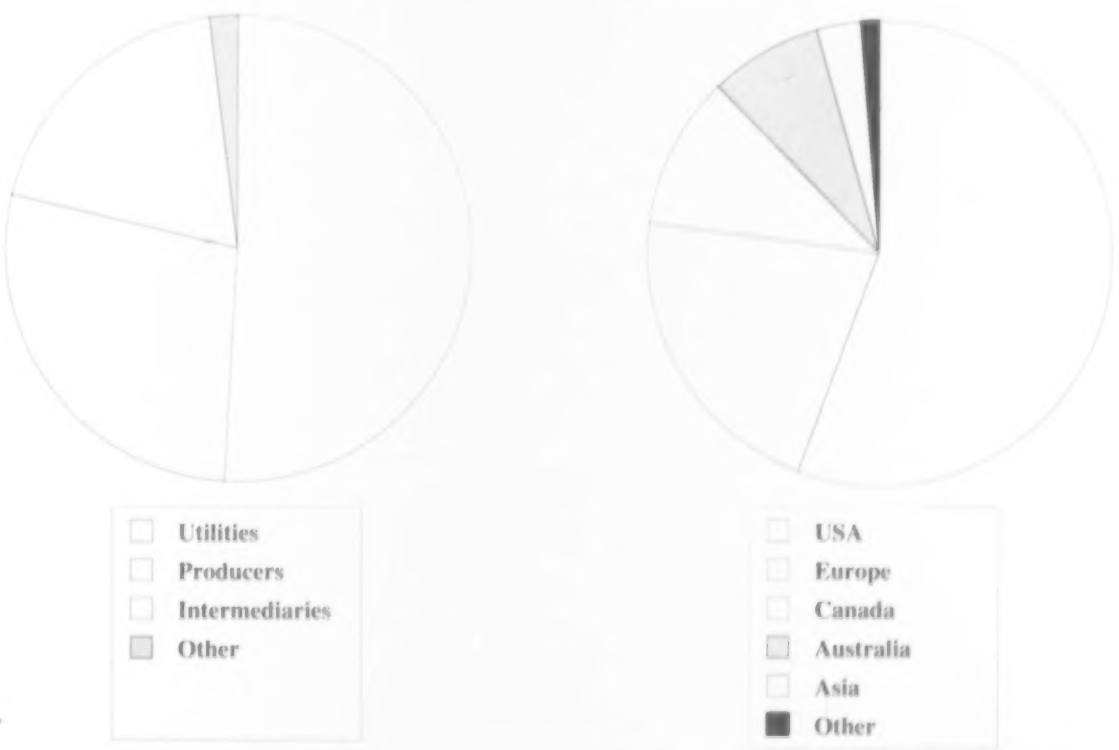
Long-term market activity in 1991 is comparable to spot market activity: while not matching last year's record pace, contracts for significant volumes of uranium were signed. Thus far in 1991, 40 long-term contracts have been concluded (33 involving concentrates, five for UF_6, and two for EUP). These sales total 38.3 million pounds equivalent U_3O_8 for delivery through 2001. Sales by producers account for 56 percent of the volume and intermediaries, for 36 percent; two sales have undisclosed sellers.

Unlike 1990 when the majority of new long-term contracts employed market-related pricing terms, sales in 1991 were fairly equally split among three types of terms: market-related (14 sales), base-price escalated (14 sales), and a series of fixed prices (12 sales).

As expected, utilities were the dominant buyers, purchasing almost 35 million pounds equivalent U_3O_8 in 36 transactions. Two intermediaries and two producers made comparatively small purchases to account for the remaining sales.

Most sales were made to US utilities, accounting for almost 62 percent of the long-term sales volume. In general, prices reflected the continuing downward movement of the spot market. In recent years, most long-term supply contracts signed in the USA have involved market-related terms, and while this trend is not as prevalent in Europe or Asia, contracting practices in the USA tend to be a bellweather of future trends in those regions.

Figure 3
1991 BUYERS BY TYPE AND ORIGIN



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CONVERSION

The Conversion Value, which had remained at $1.45 per pound U as UF_6 for 14 consecutive months, moved up modestly to $1.50 per pound U on May 31, 1991. After a period of adjustment, the Conversion Value settled at $1.55 per pound U on September 30. This slight increase reflects the gradual reduction, during the second and third quarter of 1991, of the UF_6 supplies that were overhanging the market early in the year.

Only nine near-term conversion sales were reported through November 1991, totalling less than two million pounds U as UF_6. This is significantly less than the previous year's twenty sales for almost seven million pounds. The reduced volume can be attributed partially to the lack of demand in the UF_6 market, for in past years, deconversion sales contributed noticeably to total volume, as sellers looked to decouple the components of UF_6 to meet buyer needs. In 1991, while comparatively higher volumes of concentrates changed hands in the spot market, much of the material was converted under long-term contracts. In 1991's nine near-term conversion transactions, seven utilities and two intermediaries purchased conversion services from converters (4 sales), intermediaries (4 sales), and one unknown seller. Seven of the sellers were US entities, while buyers were two-thirds US and one-third European.

The long-term conversion market was more active, as eight sales were concluded, totalling almost 24 million pounds U as UF_6. Five utilities and three intermediaries purchased conversion services covering the period 1991 through 1997. Although total sales volume was very large, the average was skewed due to one large sale to a utility. Both buyers and sellers were predominantly US companies.

URANIUM LOANS

The Loan Rate remained at 3.5 percent per annum throughout the year. In fact, the Loan Rate has not changed since November 1987. By filling spot demand and thereby deferring purchases to a later date, uranium loans continued to be an important factor in the market . While the Loan Rate has been constant, in the latter half of this year it has been under some downward pressure from several key factors: low loan demand, a number of willing lenders, and a significantly lower interest rate structure in the USA. Nevertheless, most loans concluded during the year took place near the prevailing Loan Rate.

Seventeen natural uranium loans totalling over 13 million pounds equivalent U_3O_8 have been concluded so far in 1991. Fifteen loans involved concentrates; the remaining two involved natural UF_6. Intermediaries have been the primary borrowers, receiving material from 12 loans. Producers and utilities were the other borrowers. Most borrowers were from the USA (14 loans); Canada (2) and Europe (1) account for the balance.

Lenders have been quite diverse, and include utilities (9 loans), fabricators (3), intermediaries (2), producers (2), and converters (1). Origins of the lenders include the USA (10), Europe (6), and Asia (1).

The loans reported involve only natural uranium, but NUEXCO is aware of at least seven EUP loans involving 1.4 million pounds equivalent U_3O_8 and over 300 thousand SWU.

ENRICHMENT SERVICES AND ENRICHED URANIUM PRODUCT

The SWU Value began 1991 at $51 per SWU, edged upward during the first and second quarter, moving to $59 per SWU on June 30, then jumping to $66 on July 31. It has now slowed its ascent, and has remained at $68 per SWU for the past two months. The driving force behind the spot enrichment market's rapid increase was large levels of SWU demand during the second and third quarter, which absorbed most of the available supply.

Many utilities, especially in the USA, began the year uncommitted for SWU supplies beyond 1995. Aggressive marketing efforts by several suppliers, in particular DOE, caused many utilities to enter the market to evaluate supply alternatives. Many options existed, including DOE's "enhanced IP3" and "SWU-power" offers, future production from Louisiana Energy Services or from CRISLA technologies, imports from Global Nuclear Services and Supply, Ltd. (GNSS), and numerous purchase strategies utilizing the spot SWU market. At least 42 utilities evaluated offers for near- and long-term supplies during 1991; in addition, at least 12 other buyers (fabricators, enrichers, intermediaries, etc.) also evaluated SWU offers during the year.

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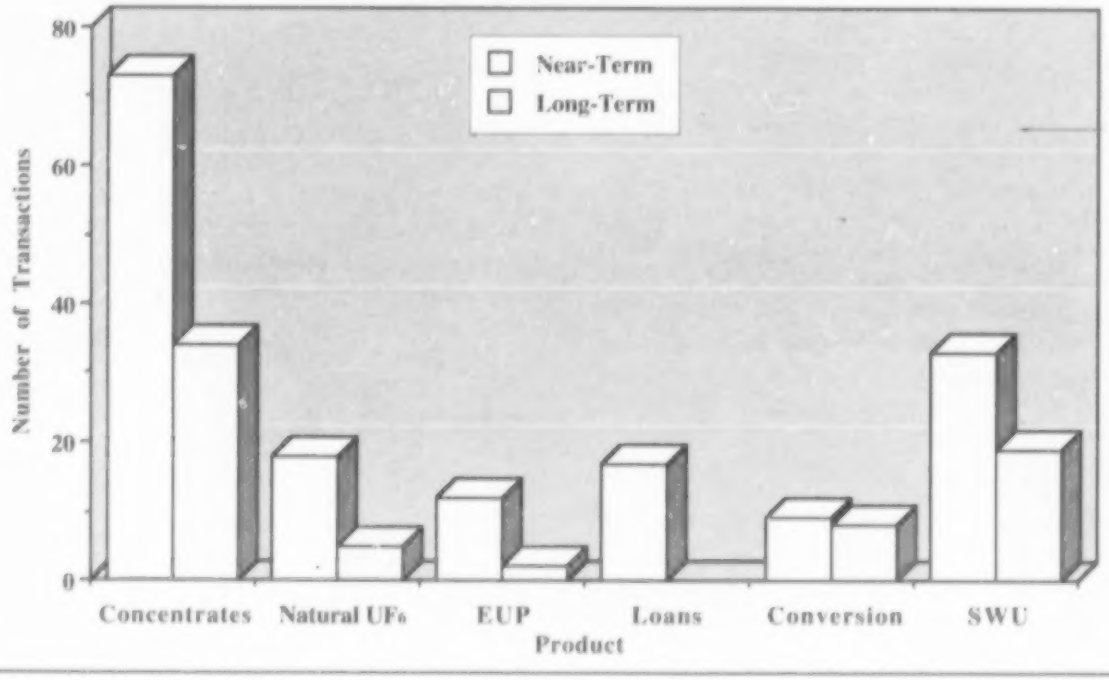
Figure 4
1991 YEAR-TO-DATE NUMBER OF TRANSACTIONS BY PRODUCT FOR BOTH NEAR-TERM AND LONG-TERM



Of course, not all buyers elected to make purchases, but 33 near-term SWU sales did occur, totalling almost 3.2 million SWU. Of these sales, twelve involved SWU contained in EUP for about 850 thousand SWU, and 21 involved only SWU for 2.3 million. Utilities purchased over 73 percent of the total volume; buyers were about equally split between the USA and Europe. Most near-term sellers were intermediaries or utilities. While the number of spot SWU sales was slightly in favor of US entities (18) over European companies (15), European firms sold over two-thirds of total spot SWU volume in 1991.

The long-term SWU market was quite active as well. Over 8.5 million SWU were contracted for in 19 transactions. Deliveries begin as early as 1992 and extend until 2002, although most sales call for delivery in 1996 and beyond. Enrichers edged out intermediaries as the primary sellers, but each accounted for sales of over four million SWU. North American entities sold about 56 percent of the SWU, while Europeans made up the balance. Buyers were exclusively utilities, and over 92 percent of total volume was sold to US utilities, with at least one US utility making a long-term commitment that involves a "power for SWU" arrangement with DOE. One European and one Asian utility also purchased long-term enrichment.

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WORLD ENRICHMENT REQUIREMENTS TO 2005

The following article contains information excerpted from the enrichment section of a NUEXCO study entitled Nuclear Fuel Market Analysis and Price Trend Projections. *It provides aggregated data on world uranium enrichment requirements and builds upon information presented in the* November 1991 Monthly Report *(No. 279, pp. 18-25) in an article entitled "World Nuclear Generating Capacity and Uranium Requirements". Specific enrichment requirements for individual countries and reactors, detailed information on specific suppliers, as well as price forecasts are published in the complete study which is available from* NUEXCO Information Services.

The primary enrichment suppliers—Eurodif, Techsnabexport, Urenco, and the US Department of Energy (DOE)—are positioning themselves to take advantage of the post-1995 market. Overall, unfilled requirements represent about 40 percent of world requirements in the year 2000. The USA will be the primary market, as US utilities' unfilled enrichment requirements account for over 60 percent of the world's total unfilled requirements. The enrichment market is moving toward more global competition, as each supplier tries to maintain its current regional market base and then to capture additional market share in other regions.

ENRICHMENT SERVICES REQUIREMENTS

NUEXCO's world enrichment requirements are based upon projected installed nuclear electric generating capacity. (The many factors considered in developing these projections are discussed in last month's article.) World generating capacity is forecast to grow at an average rate of 2.4 percent per year, and reach 448 gigawatts electric (GWe) by 2005. From these forecasts, projected enrichment requirements total 38.6 million SWU by 2005 for all countries that have announced nuclear programs. Enrichment requirements for programs other than civilian nuclear power are not covered. **Table 1** below provides a list of all countries included in the analysis, grouped into regions. Countries not listed are not projected to have an operating nuclear plant before 2005.

All projections in the study were made for low growth, high growth, and reference case scenarios. This article summarizes only the reference case. That scenario assumes some slippage of construction progress from announced schedules of reactors under construction, and also assumes that most reactors whose construction has been halted eventually will be cancelled.

Table 1
COUNTRIES INCLUDED

Eastern Europe	Western Europe	Far East	United States	Other Countries
Bulgaria	Belgium	China [1]	USA	Argentina
CSFR [2]	France	Japan		Brazil
Finland	Germany	South Korea		Canada
Hungary	Italy	Taiwan		Cuba
Poland	The Netherlands			Egypt
Romania	Spain			India
Soviet Union	Sweden			Israel
Yugoslavia	Switzerland			Mexico
	UK			Pakistan
				South Africa

[1] China: refers to the People's Republic of China

[2] CSFR: Czech and Slovak Federal Republic, formerly Czechoslovakia

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Tails Assay and Capacity Factor

A significant factor directly affecting projected enrichment requirements is the tails assay. NUEXCO's calculations include an optimization for this value. The tails assay in each year is selected so as to minimize the cost of enriched uranium product based on the projected prices of uranium, conversion, and enrichment services. In this study, the optimization yielded a tails assay in excess of 0.3 weight-percent (%) U^{235} in almost all years. The nominal maximum tails assay allowed by most enrichers is 0.3 %. Therefore, in keeping with this constraint, a tails assay of 0.3 % was used consistently in the calculation of enrichment requirements.

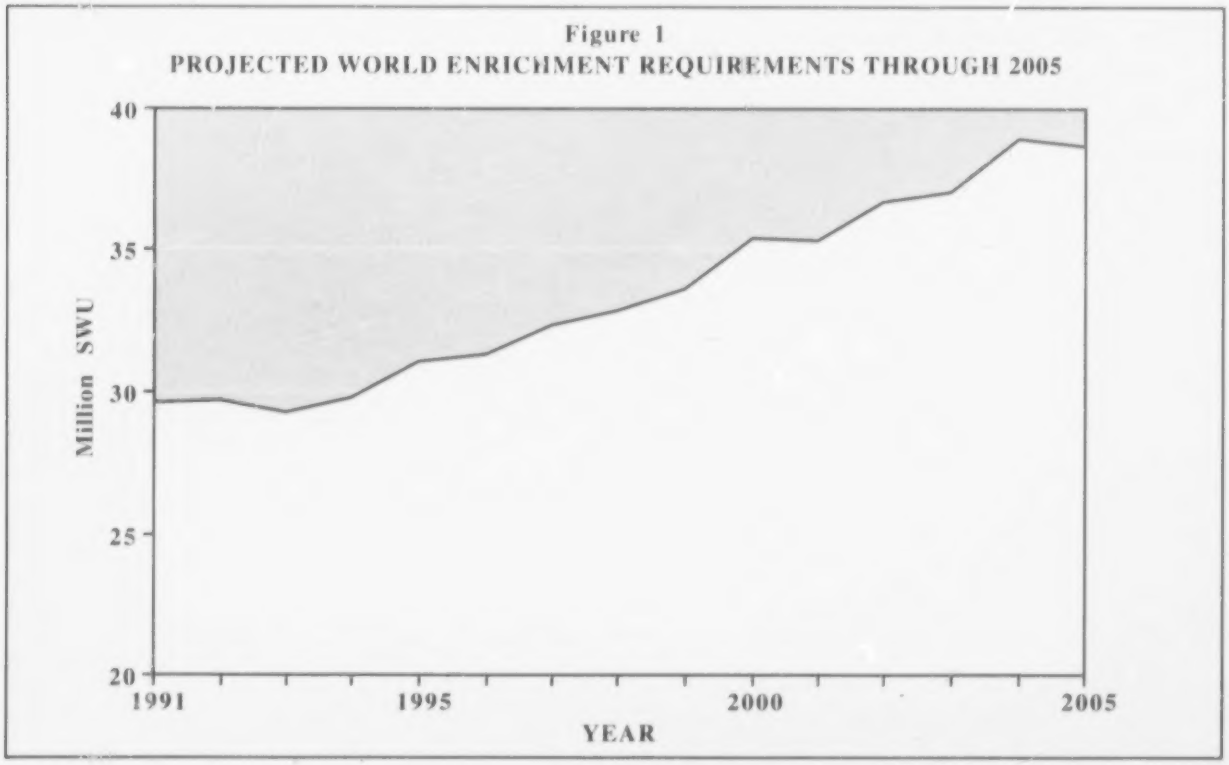
Another important factor in determining enrichment requirements is the capacity factor of each reactor worldwide. Reactor capacity factor (CF) is defined as the ratio of actual electric production over a period of time, to the theoretical maximum production that could have been obtained had the reactor operated at full power 100 percent of the time. Plant-by-plant capacity factors throughout the world were compiled and analyzed. The individual reactor capacity factors were processed to yield an average capacity factor for that reactor for the last three years: 1988, 1989, and 1990. This average was used as the projected capacity factor in 1991 for that reactor. Capacity factors for Bulgaria, CSFR, and the Soviet Union were based on a two-year average of 1988 and 1989.

In order to allow for reasonable future improvements in plant operating reliability, the capacity factor of each reactor is assumed to increase each year as a ramp function toward a maximum feasible capacity factor for that reactor type. This improvement function depends upon the specific characteristics of the reactor, such as whether it refuels on-line or shuts down for refueling. The function also allows for greater increases from reactors that have lower average CFs, and smaller increases from high CF plants, to reflect that each incremental improvement in capacity factor becomes more difficult as a plant approaches a maximum feasible capacity factor. This approach results in an aggregated capacity factor for the world of about 70 percent in 1991, increasing to about 73 percent in 2000, and 74 percent in 2005.

Enrichment Requirements

Projected world enrichment requirements through 2005 are shown in **Figure 1**. These total estimated requirements, excluding any reductions that may result from the

Figure 1
PROJECTED WORLD ENRICHMENT REQUIREMENTS THROUGH 2005



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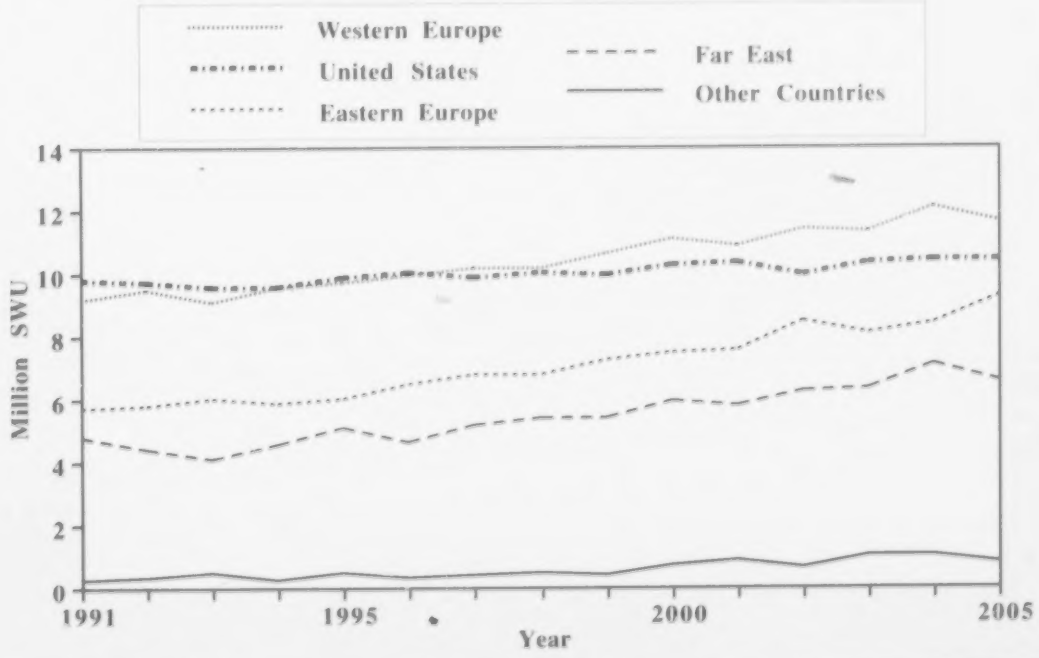
reprocessing or recycling of plutonium, are 29.6 million separative work units (SWU) in 1991, increasing to 35.4 million SWU in 2000, and to 38.6 million SWU in 2005. This represents an average annual growth rate of about two percent from 1991 to 2000.

Enrichment requirements by region are provided in **Table 2**. Due to the preponderance of heavy-water moderated reactors (which operate on natural uranium) in Other Countries, these countries as a group consume relatively small amounts of enrichment services, despite their rapid growth rate. **Figure 2** depicts the projected enrichment requirements by region for the reference case scenario. In aggregate, a low-growth scenario would reduce projected world enrichment requirements by an average of seven percent, whereas a high-growth scenario could boost requirements by over five percent through the year 2000.

Table 2
PROJECTED URANIUM ENRICHMENT REQUIREMENTS

Region	Million SWU		Growth (1991 to 2000)		
	1991	2000	Million SWU	Percent	Percent/Year
Eastern Europe	5.7	7.4	1.7	31	3.0
Western Europe	9.1	11.0	1.9	21	2.1
Far East	4.8	6.0	1.2	24	2.4
United States	9.8	10.3	0.5	5	0.5
Other Countries	0.2	0.7	0.5	243	13.8
Total World	**29.6**	**35.4**	**5.8**	**20**	**2.0**

Figure 2
PROJECTED WORLD ENRICHMENT REQUIREMENTS BY REGION



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Unfilled Requirements

In 1995, unfilled requirements represent about five percent of world enrichment requirements, and grow to about 40 percent by 2000. The bar chart in **Figure 3** shows world requirements segregated into filled and unfilled portions, and illustrates the growing amount of unfilled requirements.

As of April 1, 1991, utilities holding 36 enrichment contracts gave DOE their notices to terminate all or a portion of their committed requirements for FY 2000 and FY 2001. As a result, unfilled requirements in the USA increase from 0.8 million SWU in 1995, to almost 9 million SWU by the year 2000. Cumulatively, unfilled requirements from the USA accounts for over 60 percent of the world's unfilled requirements for the years 1996-2000.

ENRICHMENT SUPPLY

The enrichment market can be best characterized as having excess production capacity compared to demand. The primary suppliers of uranium enrichment services are located in the USA, Europe, and the Soviet Union. **Table 3** lists the world's enrichment suppliers, their plants, enrichment processes, and nameplate capacity. World enrichment capability is estimated at about 38 million SWU per year, including the Soviet Union, China, and several smaller enrichment programs worldwide.

In FY 1991, DOE produced about 11 million SWU, significantly less than its nameplate capacity of 19.2 million. Eurodif and Techsnabexport also are projected to produce below their capacity this year. The chart in **Figure 4** shows western suppliers' nameplate SWU production capacity relative to their expected level of production in 1991.

Figure 3
PROJECTED WORLD UNFILLED ENRICHMENT REQUIREMENTS

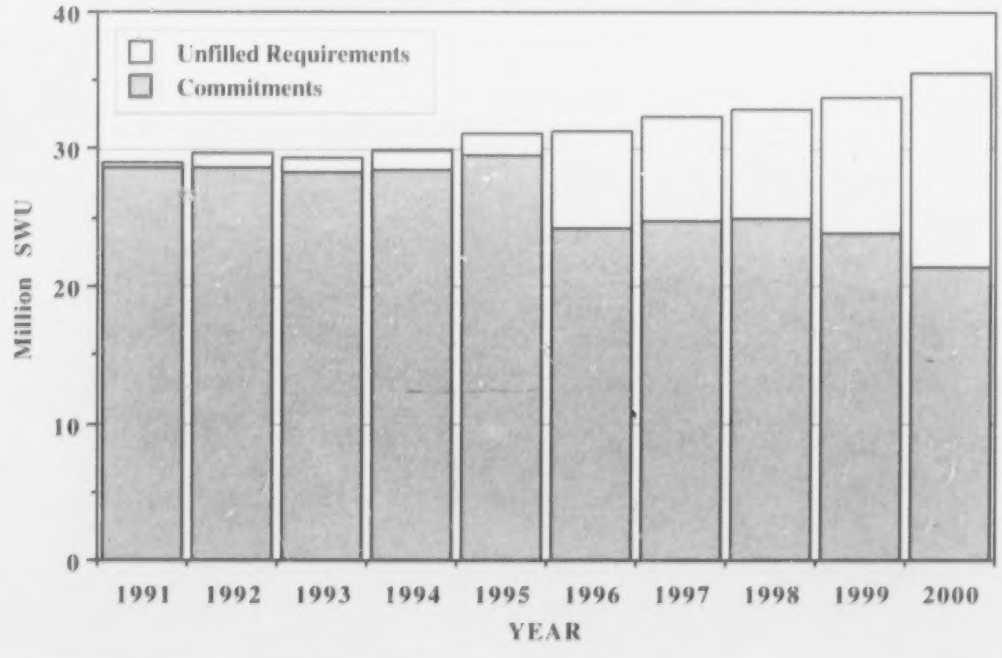

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Table 3
WORLD ENRICHMENT SUPPLIERS

Supplier	Plant	Enrichment Process	Initial Production Began	Nameplate Capacity (Million SWU/yr)
USDOE	Paducah, Kentucky	Gaseous Diffusion	1954	11.3
	Portsmouth, Ohio	Gaseous Diffusion	1956	7.9
				19.2
TENEX	Sverdlovsk, Soviet Union	Gaseous Diffusion [1]	1949	na
	Sverdlovsk, Soviet Union	Centrifuge	1957 [2]	na
	Tomak, Soviet Union	Centrifuge	1957 [2]	na
	Krasnoyarsk, Soviet Union	Centrifuge	1957 [2]	na
	Angarsk, Soviet Union	Centrifuge	1957 [2]	na
				4.0 [3]
Eurodif	Georges Besse, France	Gaseous Diffusion	1979	10.8
Urenco	Capenhurst, United Kingdom	Centrifuge	1976	0.7
	Almelo, The Netherlands	Centrifuge	1976	1.5
	Gronau, Germany	Centrifuge	1985	0.5
				2.6
PRC	People's Republic of China	Gaseous Diffusion	na	0.5 [4]
South Africa	Valindaba	Helikon	1986	0.3
Japan	Rokkasho-mura	Centrifuge	1988	0.2
Other	Argentina	Gaseous Diffusion/Centrifuge	1990	na
	Brazil	Gaseous Diffusion/Centrifuge	1990	na
				0.2
TOTAL				**37.8**

na = not available

[1] NUEXCO believes the final operating GDP was closed in 1990.

[2] The Soviet Union's centrifuge-based production began in 1957, although exactly which plant(s) began production in 1957, and the subsequent years that production began for the remaining plants, is unavailable.

[3] NUEXCO has estimated the Soviet Union has 4 million SWU currently available for export.

[4] The only available production capacity figure for the People's Republic of China is the available capacity for export purposes.

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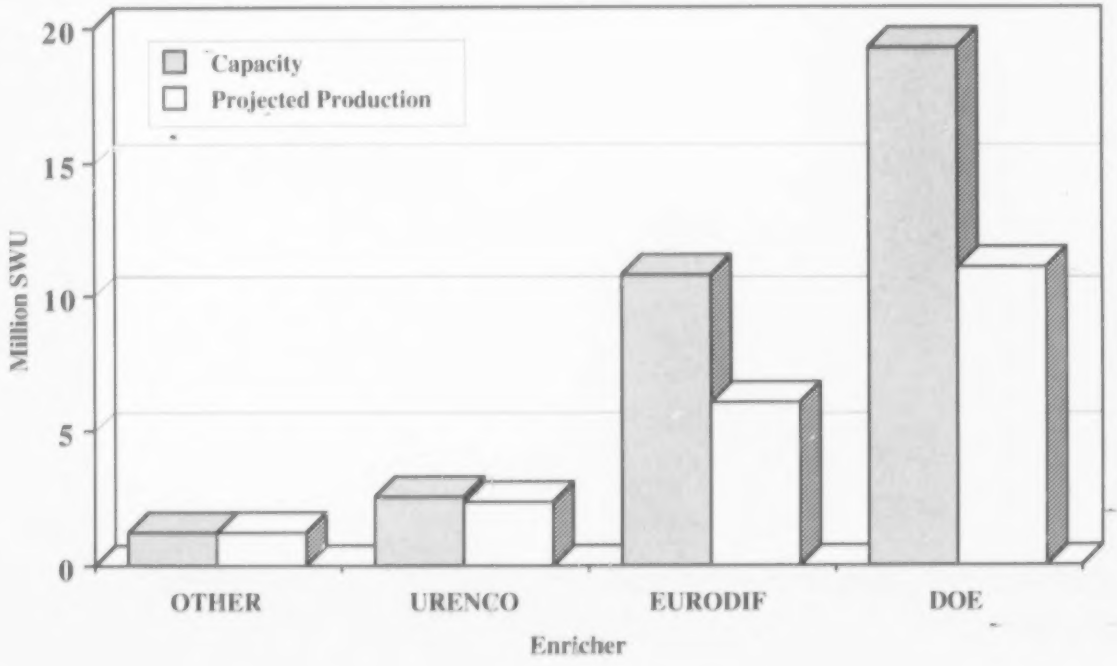
Figure 4
WESTERN WORLD ENRICHMENT SUPPLIERS' NAMEPLATE PRODUCTION CAPACITY AND ESTIMATED 1991 PRODUCTION



NUEXCO projects this production overcapacity to continue beyond 2005. Nevertheless, new capacity may be added during the 1990s, as new suppliers plan to have a cost advantage. This additional capacity includes 1.5 million SWU per year by Louisiana Energy Services, 250 thousand SWU per year by CRISLA Technologies by the mid-1990s, and further capacity additions in Japan. Countries such as Argentina and Brazil are also in various stages of enrichment deployment; however, this supply will be used domestically and will impact the world enrichment market only by reducing total demand.

Enrichment Technologies

The two major processes currently used to enrich uranium are gaseous diffusion and gas centrifuge. The diffusion process involves the flow of gaseous uranium hexafluoride through a cascade of porous diffusion barriers. The U^{235} isotope, being lighter than the U^{238} isotope, passes through the barriers in greater quantities. Thus each passage results in a small degree of enrichment. The diffusion process is used in the United States by DOE and in France by Eurodif.

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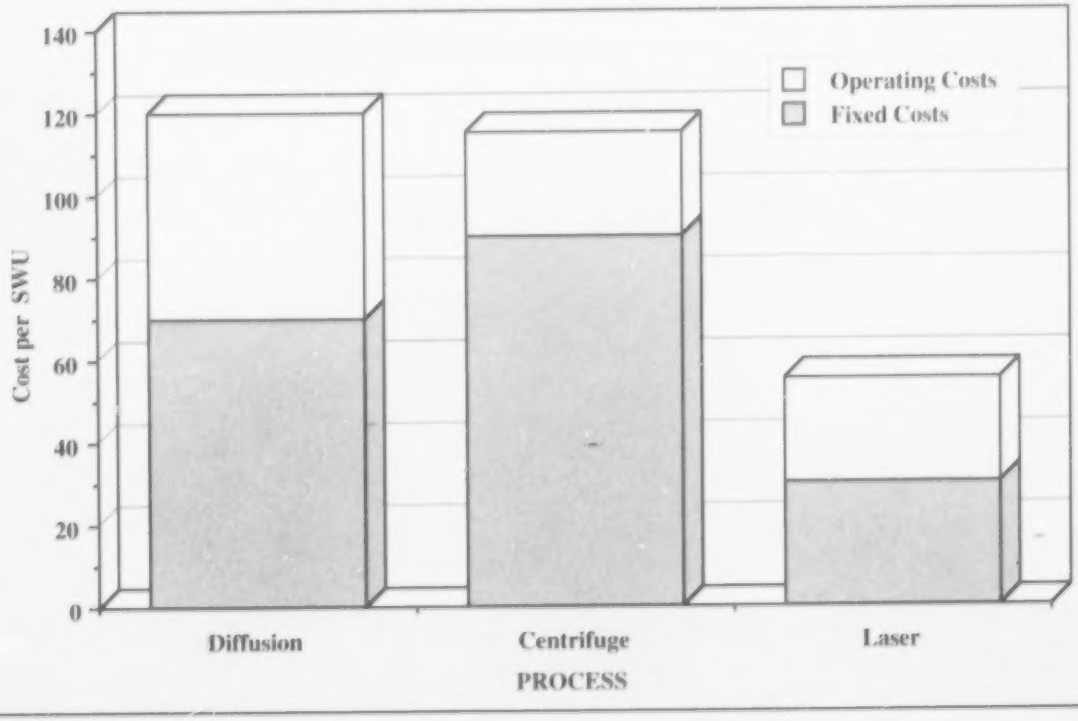
The centrifuge process involves spinning uranium hexafluoride (UF_6) gas at high rotational speeds (between 40,000 and 50,000 revolutions per minute) forcing the U^{238} toward the perimeter, and leaving the U^{235} concentrated near the axis. The centrifuge process requires substantially less energy than gaseous diffusion. This process is used by Urenco in Britain, Germany, and The Netherlands, and by Techsnabexport in the Soviet Union. The Japanese have a pilot centrifuge plant and are constructing a small, modular commercial plant, both of which are producing small quantities of SWU.

Both the traditional methods of uranium enrichment—gaseous diffusion and centrifuge isotope separation—are based on the difference in atomic mass of uranium isotopes. Because a UF_6 molecule containing a U^{238} atom is less than one percent heavier than its U^{235} counterpart, the separation factor of each enrichment stage is very small, and it takes a large number of stages to achieve the product enrichments necessary for civilian nuclear reactors, resulting in higher enrichment costs.

New enrichment processes that use lasers on either an atomic or molecular scale, are being developed and could lower costs in the future. Laser enrichment represents a radical departure from the traditional diffusion or centrifuge approach. Laser separation systems are based on the difference in quantum energy levels of the various isotopes. Finely tuned laser light is used to excite only the desired isotope to a higher energy level, causing this isotope to behave differently, which leads to its separation. For example, in the Atomic Vapor Laser Isotope Separation (AVLIS) system, U^{235} atoms are selectively excited to the ionization level where they can be separated by means of an electromagnetic field. Similarly, the Chemical Reaction by Isotope Selective Laser Activation (CRISLA) process uses lasers to excite U^{235} atoms to a state where, instead of being separated by an electric field, the atoms chemically react more readily with a scavenging gas.

Figure 5
ESTIMATED COSTS OF ENRICHMENT PROCESSES



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In both of these photo-excitation processes, the difference in the quantum energy jumps between uranium isotopes is very small, typically less than one part in 100,000. As the energy in light is proportional to its frequency, the use of lasers with very narrow frequency line widths is necessary to selectively excite the U^{235} atoms. The AVLIS system has been proven in theory and the laboratory; large-scale prototype testing of this laser process is planned for 1992 in the USA (AVLIS) and after the year 2000 in France (SILVA). Once these laser methods progress to commercial operation, they likely will have a significant cost advantage over traditional methods (**Figure 5**).

CONCLUSION

World enrichment requirements are expected to grow steadily into the next century. While the market already is characterized by excess capacity, additional capacity is still planned for operation by the late 1990s. Consequently, supply will remain abundant and production costs will become an increasingly important factor in a competitive market. Traditional methods of gaseous diffusion and gas centrifuge will remain the primary means of production, although laser methods, once in full-scale operation, should begin to capture a sizeable market share because of their projected cost advantage.

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NUCLEAR INDUSTRY CALENDAR

1992

Feb. 23-25 ***INFO Centers Workshop*** (Marriott Hotel, Palm Beach Gardens, Florida).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

March 22-25 ***Fuel Cycle Conference '92*** (OMNI Charleston Hotel, Charleston, South Carolina).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

April 8-10 ***Research and Development in the Nuclear Industry*** (Peterhouse, University of Cambridge, England).
Sponsored by the Institution of Nuclear Engineers and the British Nuclear Forum.
Contact: Ms. Ipek Yigit, Manager for Public and Industrial Affairs, British Nuclear Forum; phone: 071-828-0116; Fax: 071-828-0110; Address: 22 Buckingham Gate, London, SW1E 6LB, England.

April 12-16 ***8th Pacific Basin Conference*** (Taipei, Taiwan).
Sponsored by the Amercian Nuclear Society.
Contact: ANS Meetings Department; 708-352-6611.

April 26-28 ***INFO '92 Conference*** (OMNI Charlotte Hotel, Charlotte, North Carolina).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

May 5-7 ***Annual Meeting on Nuclear Technology '92*** (City Conference Hall, Karlsruhe, Germany).
Sponsored by the German Nuclear Society and the German Atomic Forum.
Contact: Congress Office JK'92; INFORUM GmbH, Heussallee 10, W-5300 Bonn 1; Phone: 0228-507-223.

Sept. 20-23 ***International Uranium Seminar '92*** (Hyatt Regency Hotel, Lake Tahoe, Nevada).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

Sept. 21-23 ***Second International Conference on Training for Operation & Maintenance in the Nuclear Industry***
(The Moat House International Hotel, Stratford-upon-Avon, United Kingdom).
Sponsored by the Institution of Nuclear Engineers.
Contact: INE Conference Secretary; 081-698-1500 or 081-698-4750; Fax: 018-695-6409.

Nov. 15-18 ***Nuclear Energy Forum*** (Fairmont Hotel, Chicago, Illinois).
Sponsored by the U. S. Council for Energy Awareness.
Contact: USCEA Conference Office; 202-293-0770; Telex: 7108249602; Fax: 202-785-4113.

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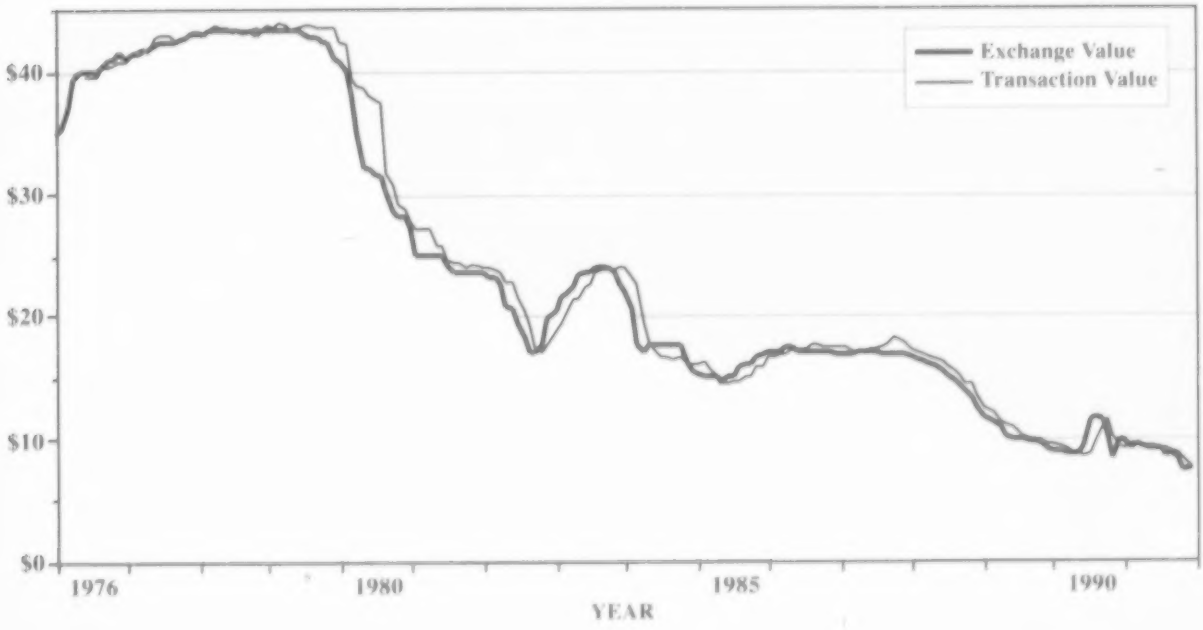
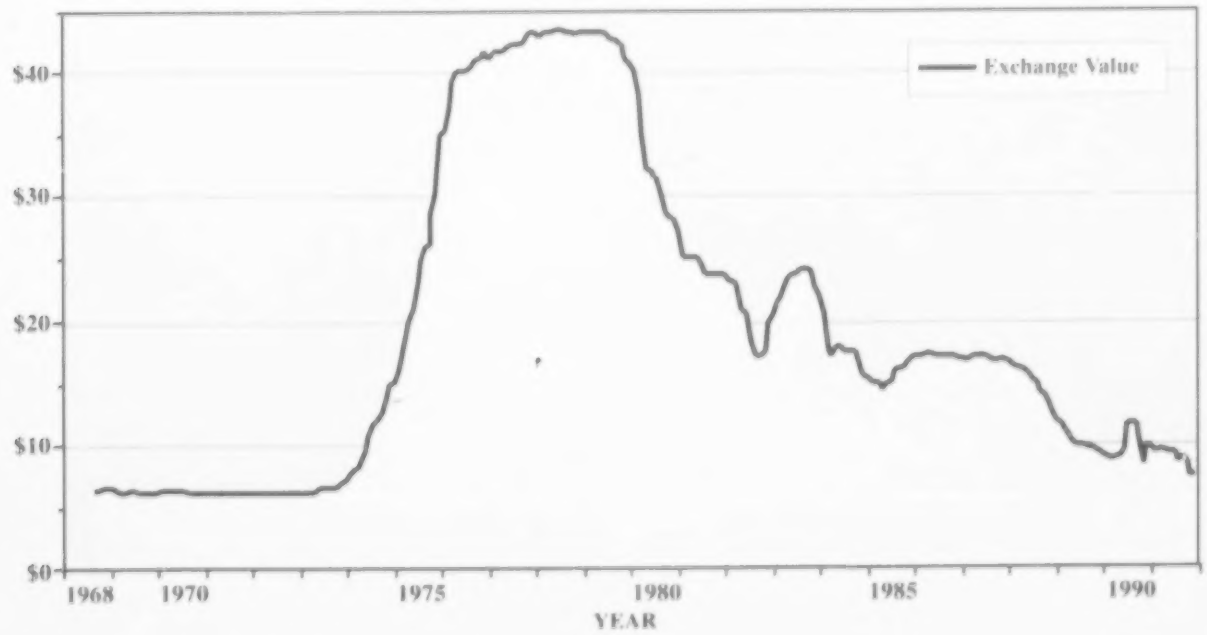
HISTORICAL MARKET DATA

NUEXCO HISTORICAL EXCHANGE VALUE AND TRANSACTION VALUE

(in US dollars per pound U_3O_8)





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HISTORICAL MARKET VALUES

Exchange Values

Determined as of the last day of the month indicated ($US/lb U_3O_8)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1968	—	—	—	—	—	—	—	6.35	6.35	6.40	6.45	6.50
1969	—	6.35	6.10	6.10	6.25	6.25	6.20	6.20	6.15	6.15	6.15	6.20
1970	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.20	6.15	6.15	6.15	6.15
1971	6.20	6.20	6.20	6.20	6.15	6.05	6.00	5.95	5.95	5.95	5.95	5.95
1972	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95
1973	5.95	6.00	6.10	6.20	6.45	6.50	6.50	6.50	6.50	6.50	6.75	7.00
1974	7.70	7.90	8.00	9.00	9.50	10.50	11.50	12.00	12.50	14.00	14.75	15.00
1975	16.00	16.00	18.00	20.00	21.00	23.00	24.70	26.00	26.00	28.50	30.00	35.00
1976	35.20	37.00	39.25	40.00	40.00	40.00	40.00	40.40	41.00	41.00	41.50	41.00
1977	41.35	41.50	41.60	41.60	42.00	42.25	42.25	42.25	42.40	42.75	43.20	43.20
1978	42.90	43.25	43.25	43.25	43.40	43.40	43.40	43.10	43.25	43.00	43.25	43.25
1979	43.25	43.25	43.25	43.25	43.25	43.00	42.70	42.70	42.20	42.20	41.00	40.75
1980	40.00	38.00	35.00	32.00	32.00	31.50	31.50	30.00	28.50	28.00	28.00	27.00
1981	25.00	25.00	25.00	25.00	25.00	24.25	23.50	23.50	23.50	23.50	23.50	23.50
1982	23.00	23.00	22.50	20.75	20.50	19.25	18.25	17.00	17.00	17.50	19.75	20.25
1983	21.50	21.75	22.25	23.25	23.50	23.50	24.00	24.00	24.00	23.50	22.50	22.00
1984	20.50	17.50	17.00	17.75	17.75	17.50	17.50	17.50	17.50	16.00	15.50	15.25
1985	15.00	15.00	15.00	14.25	15.00	15.00	15.75	16.00	16.00	16.50	16.75	17.00
1986	17.00	17.00	17.25	17.25	17.00	17.00	17.00	17.00	17.00	17.00	16.75	16.75
1987	16.65	16.75	17.00	17.00	17.00	16.90	16.75	16.65	16.65	16.75	16.65	16.55
1988	16.30	16.15	15.90	15.75	15.40	15.10	14.75	14.15	13.75	13.15	12.50	11.75
1989	11.60	11.20	10.70	10.10	9.85	9.80	9.80	9.70	9.60	9.40	9.20	9.00
1990	8.85	8.70	8.80	8.80	9.25	11.60	11.70	11.45	10.10	8.35	9.80	9.70
1991	9.10	9.50	9.30	9.10	9.20	9.05	8.55	8.75	8.40	7.25	**7.40**	

US Premium (Relative to the Exchange Value)

Determined as of the last day of the month indicated ($US/lb U_3O_8)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1986	—	—	—	—	—	—	—	—	—	—	0.65	0.75
1987	0.85	1.00	1.50	1.50	0.90	0.60	2.50	2.35	2.10	1.65	0.85	0.65
1988	0.70	0.50	0.15	0.25	0.60	0.00	0.00	0.00	0.00	0.00	**Discontinued**	

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HISTORICAL MARKET DATA

UF_6 Values

Determined as of the last day of the month indicated ($US/kg U as UF_6)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1985	—	—	—	40.50	42.50	42.50	44.00	44.50	44.50	46.00	46.00	47.00
1986	47.00	48.00	48.00	48.50	48.25	48.25	48.25	48.00	48.00	48.00	48.00	47.75
1987	47.75	48.00	48.00	48.00	47.75	47.75	47.50	47.00	46.75	47.00	47.00	47.00
1988	46.50	46.00	45.50	45.25	44.75	44.00	42.75	41.00	40.75	39.00	37.50	35.50
1989	34.75	34.00	33.00	30.50	30.25	30.25	30.00	29.75	29.75	28.25	27.75	26.50
1990	25.90	25.25	24.40	24.40	25.50	32.00	32.50	32.25	29.50	24.75	28.75	28.75
1991	27.50	27.75	27.50	27.25	27.60	27.25	25.75	26.25	25.50	22.75	**22.75**	

US Premium (Relative to the UF_6 Value)

Determined as of the last day of the month indicated ($US/kg U as UF_6)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1986	—	—	—	—	—	—	—	—	—	—	2.50	2.50
1987	2.50	2.50	3.50	3.00	2.25	1.75	6.50	6.00	4.25	3.10	2.25	2.00
1988	1.25	1.25	0.50	0.50	1.00	0.00	0.00	0.00	0.00	0.00	**Discontinued**	

Conversion Values

Determined as of the last day of the month indicated ($US/lb U as UF_6)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1981	1.20	1.20	1.20	1.40	1.15	1.15	1.15	1.10	1.10	1.10	1.20	1.20
1982	1.20	1.20	1.20	1.20	1.00	1.00	1.00	0.90	1.10	1.60	1.45	1.45
1983	1.20	1.40	1.40	1.20	1.20	1.20	1.10	1.10	1.00	0.60	0.60	0.60
1984	0.60	0.30	0.80	0.80	0.80	0.00	0.00	0.80	1.00	1.00	0.80	0.80
1985	1.00	1.00	1.00	1.50	1.50	1.60	1.60	1.60	1.60	1.60	1.60	1.60
1986	1.60	1.80	1.90	1.80	1.80	1.80	1.80	1.90	1.90	1.90	1.80	1.80
1987	1.80	1.80	1.80	1.80	1.80	1.80	1.90	1.90	1.90	1.90	1.90	1.90
1988	1.90	1.80	1.80	1.80	1.80	1.80	1.85	1.95	1.95	1.95	1.95	1.95
1989	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.90	1.90	1.80	1.75	1.65
1990	1.50	1.50	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.45
1991	1.45	1.45	1.45	1.45	1.50	1.50	1.50	1.60	1.55	1.55	**1.55**	

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Transaction Values

Determined as of the last day of the month indicated ($US/lb U3O8)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1976	—	—	—	—	39.60	39.70	39.70	40.40	40.30	40.60	40.70	40.70
1977	41.30	41.30	41.40	41.50	42.80	42.90	43.00	42.60	42.50	42.80	42.90	42.90
1978	43.10	43.30	43.70	43.60	43.60	43.20	43.30	43.40	43.40	43.60	43.40	43.70
1979	43.60	43.80	43.70	43.40	43.60	43.70	43.70	43.60	43.60	43.60	43.50	42.30
1980	42.00	39.30	38.60	38.40	37.90	37.60	37.30	31.60	30.60	29.00	28.70	27.70
1981	27.20	27.20	27.00	25.70	25.70	24.50	24.40	24.30	23.90	24.10	24.10	24.00
1982	24.00	23.70	23.40	22.60	22.70	21.50	20.30	19.10	17.30	17.00	17.55	18.80
1983	19.35	20.00	21.35	21.40	22.35	22.45	23.50	23.60	23.65	23.65	23.85	23.85
1984	23.05	22.50	19.25	17.90	17.00	16.50	16.60	16.40	16.55	16.05	15.90	15.90
1985	16.20	15.70	15.05	14.90	14.45	14.60	14.75	15.10	15.10	15.75	15.80	16.55
1986	16.55	16.70	16.70	17.10	17.15	17.20	17.50	17.45	17.35	17.25	17.30	17.35
1987	17.35	16.90	16.95	17.00	17.20	17.10	17.30	17.55	18.20	18.05	17.80	17.20
1988	16.85	16.65	16.55	16.45	16.10	15.80	15.45	15.00	14.50	14.40	13.30	12.50
1989	12.25	12.00	11.25	11.00	10.75	10.45	9.95	9.80	9.80	9.65	9.55	9.40
1990	9.25	9.05	8.75	8.65	8.55	8.80	9.75	10.80	11.40	10.10	9.30	9.15
1991	9.40	9.45	9.35	9.30	9.30	9.20	9.15	8.95	8.70	8.35	7.45	

SWU Values

Determined as of the last day of the month indicated ($US per SWU)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1986	80	80	80	80	75	78	78	78	78	78	80	80
1987	80	80	77	77	75	73	75	75	73	69	73	73
1988	73	73	70	68	68	68	68	65	65	65	65	65
1989	65	67	67	67	66	66	66	65	63	59	57	54
1990	54	50	50	50	50	50	50	50	50	51	51	51
1991	51	50	52	52	54	59	66	67	67	68	68	

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HISTORICAL MARKET DATA

Loan Rates

Determined as of the last day of the month indicated (Percent per Annum)

Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1968	—	—	—	—	—	—	—	4.00	4.00	4.00	4.00	4.00
1969	4.00	4.00	5.00	5.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00
1970	6.00	6.20	6.40	6.50	6.50	6.50	6.50	5.00	6.50	6.00	5.50	5.50
1971	5.00	4.75	4.75	4.75	5.00	5.25	5.25	5.25	5.25	5.25	4.50	4.50
1972	4.00	4.00	4.00	4.50	4.50	4.50	5.00	5.00	5.00	5.00	5.00	5.00
1973	5.50	5.50	5.75	5.75	6.00	6.25	7.00	7.00	7.00	7.00	7.50	8.00
1974	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
1975	8.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50	6.50
1976	6.50	6.50	6.50	6.50	*	*	*	*	*	*	*	*
1977	*	*	*	*	*	6.50	6.50	6.50	6.75	7.25	7.25	7.25
1978	7.25	7.00	7.00	7.00	7.00	7.50	7.75	7.75	7.75	7.00	7.00	7.00
1979	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
1980	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
1981	7.00	7.00	7.00	7.00	7.00	5.50	5.50	5.50	5.50	6.00	6.00	6.00
1982	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
1983	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
1984	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00
1985	6.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
1986	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
1987	3.00	3.00	3.00	3.00	3.00	3.00	3.00	4.00	4.00	4.00	3.50	3.50
1988	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
1989	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
1990	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
1991	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	

* Float with Prime Rate

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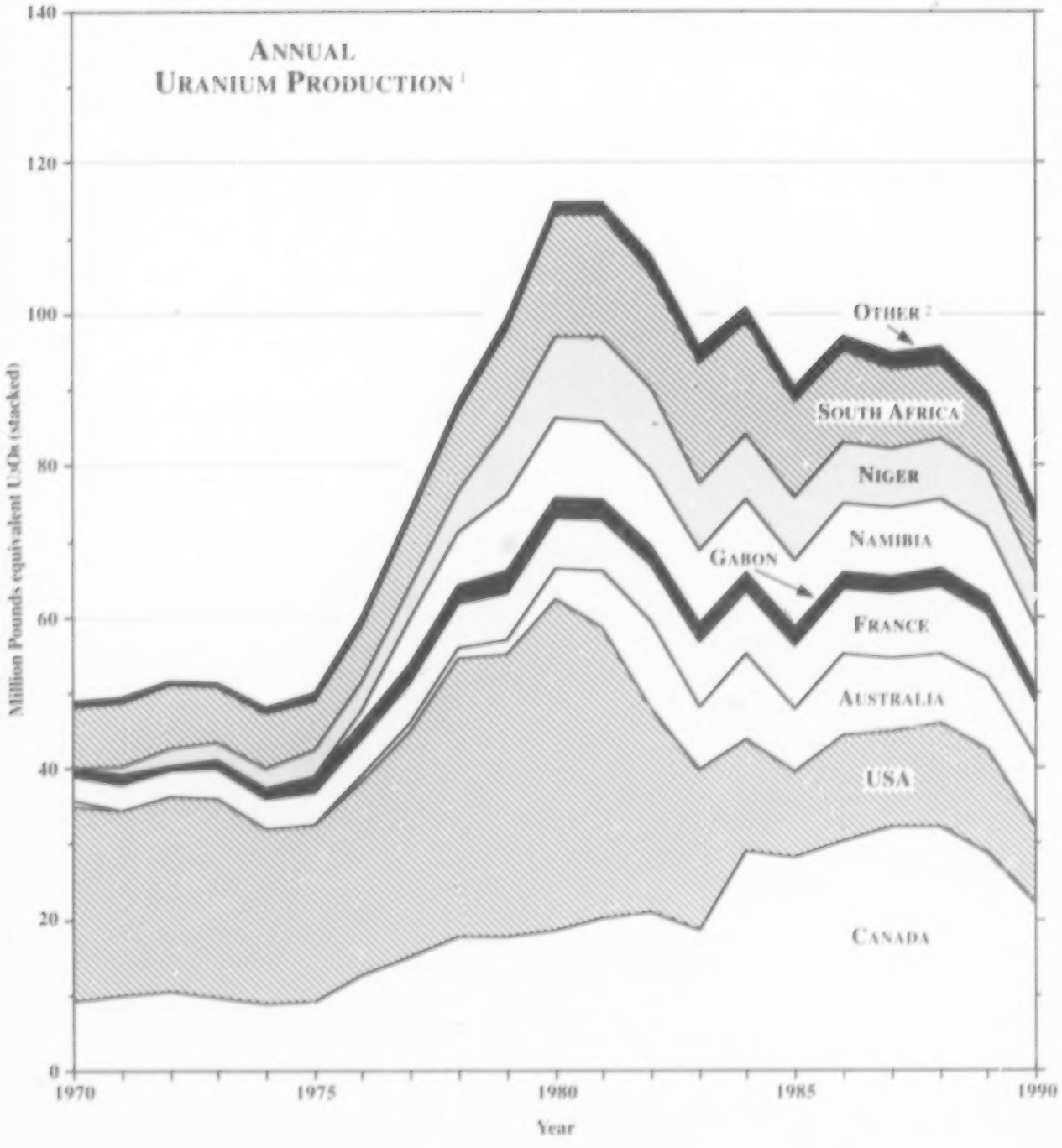

[1] Estimated world uranium production in 1990 totalled 74.5 million pounds equivalent U_3O_8 —
(Australia: 9.1 - Canada: 22.0 - France: 7.4 - Gabon: 1.8 - Namibia: 8.0 - Niger: 7.4 - South Africa: 6.4 - USA: 10.2 - Other[2]: 2.2)

[2] **Other** includes: Argentina, Belgium, Brazil, India, Pakistan, Portugal, Spain, western Germany, and Yugoslavia

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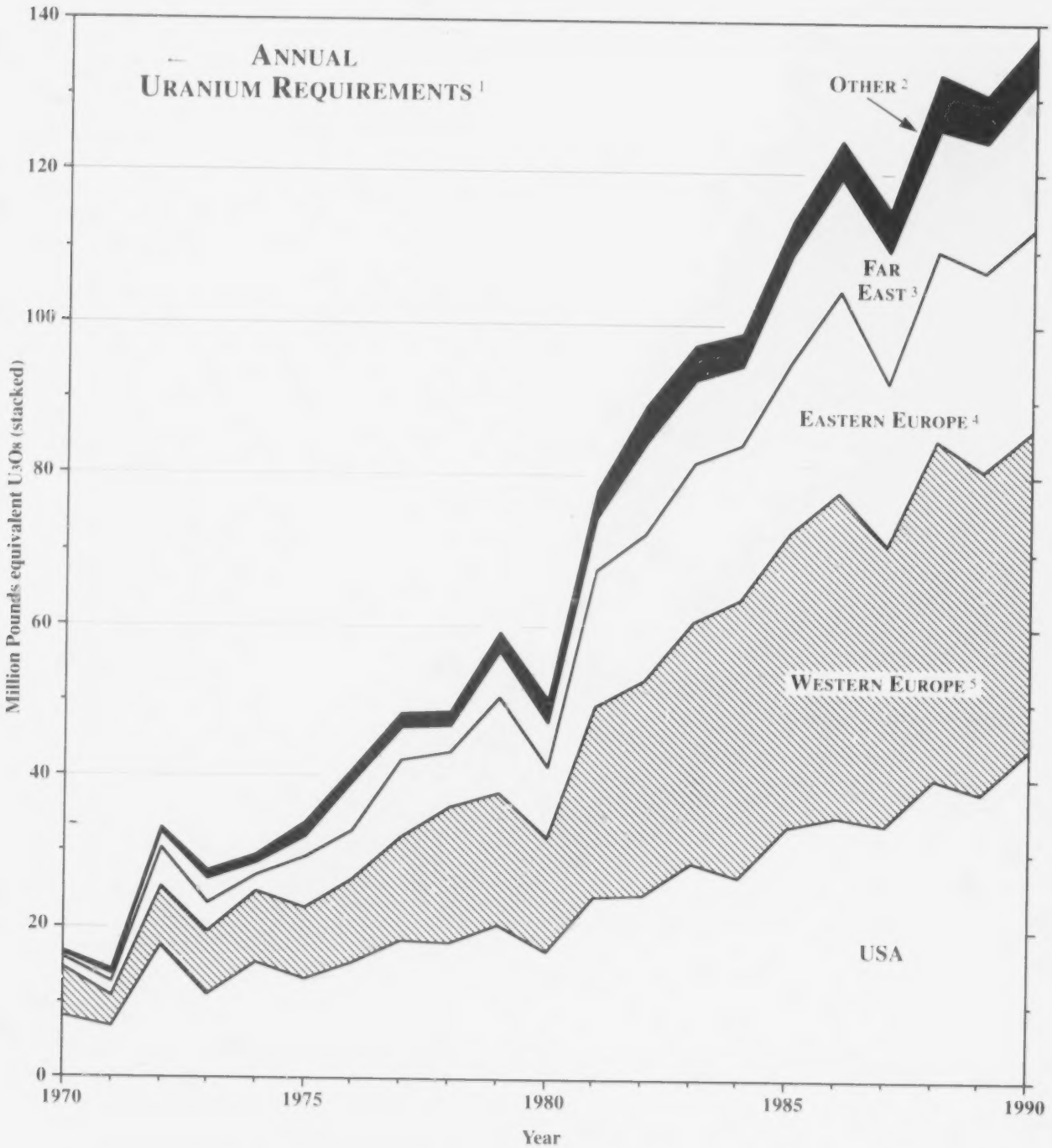
HISTORICAL MARKET DATA



[1] Calculated by NUEXCO based on actual completion dates and operating performance, and NUEXCO's estimate of enriching tails assay.
[2] **Other** includes: Argentina, Brazil, Canada, India, Mexico, Pakistan, and South Africa.
[3] **Far East** includes: Japan, People's Republic of China, South Korea, and Taiwan.
[4] **Eastern Europe** includes: Bulgaria, Czechoslovakia, E. Germany, Finland, Hungary, USSR, and Yugoslavia.
[5] **Western Europe** includes: Belgium, France, W. Germany, Italy, The Netherlands, Spain, Sweden, Switzerland, and UK.

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Australia

Year	Period [1]	Consumer Price Index [2] (1980/1981 = 100)	Price Index of Materials Used in Manufacturing Industry — All Groups [3] (1984/1985 = 100)	Average Weekly Ordinary Time Earnings — Adult Males — Australia [4] (Australian dollars)	Award Rates of Pay Indexes Australia - Adult Males In Mining Wage Earners, Weekly Rates [5] (June 1985=100)
1980	Avg.	95.8	83.1	—	69.6
1981	Avg.	105.0	85.9	—	76.1
1982	Avg.	116.7	89.0	—	86.4
1983	Avg.	128.5	96.9	—	89.9
1984	Avg.	133.6	98.0	—	96.0
1985	Avg.	142.6	107.3	—	100.0
1986	Avg.	155.5	101.5	—	104.9
1987	Avg.	168.7	108.9	465.88	112.9
1988	Avg.	180.9	111.8	496.90	115.4
1989	Avg.	194.6	117.0	534.65	126.0
1990	Avg.	208.7	123.4	571.43	129.6
Jan	1990	—	119.2	—	128.3
Feb	1990	—	120.8	555.80	128.3
Mar	1990	204.1	121.5	—	128.7
Apr	1990	—	119.9	—	129.0
May	1990	—	118.9	566.60	129.2
June	1990	207.4	116.6	—	129.8
July	1990	—	116.4	—	129.9
Aug	1990	—	122.4	574.10	130.0
Sept	1990	208.9	128.2	—	130.3 R
Oct	1990	—	134.1	—	130.4
Nov	1990	—	133.7	589.20	130.5 R
Dec	1990	214.5	128.8	—	130.6
Jan	1991	—	125.6	—	130.6
Feb	1991	—	121.5	597.70	130.6
Mar	1991	214.1	119.1	—	130.9 R
Apr	1991	—	117.6	—	131.1 R
May	1991	—	117.8	592.00	131.1 R
June	1991	214.4	120.4	—	131.1 R
July	1991	—	120.4	—	131.1 R
Aug	1991	—	119.9	—	131.4 R
Sept	1991	—	118.3	—	131.6

P = Preliminary **R** = Revised since last month

[1] Monthly data for the period 1967 to 1990 appears in Report 278.
[2] Weighted average of six State capital cities (1975 to 1980), and eight capital cities from 1981 (Base: Financial year July 1980 to June 1981 = 100.0). Figures shown at end of quarter represent quarterly average.
[3] Australian Bureau of Statistics, Canberra: "Price Index of Materials Used in Manufacturing Industry" (Catalogue No. 6411.0).
[4] Australian Bureau of Statistics, Canberra: "Award Rates of Pay Indexes, Australia" (Catalogue No. 6312.0). Figures for the latest fourteen months shown are subject to revision.
[5] Australian Bureau of Statistics, Canberra: "Average Weekly Earnings, States & Australia" (Catalogue No. 6302.0).

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GOVERNMENT STATISTICS

Canada

		Industrial Products Price Index: All Commodities [1] (1986 = 100) [2]	Consumer Price Index: All Items (1986 = 100) [3]	Wage-earner Data: Average Hourly Earnings (C$) [4] Uranium Mines (SIC 057)	Metal Mines (SIC 051-059)	Mines, Quarries and Oil Wells (SIC 051-099)	Metal Rolling, Casting and Extruding (SIC 298)	Chemicals and Chemical Products Industries (SIC 372-379)
1980	Avg.	75.9	67.2	–.–	–.–	–.–	–.–	–.–
1981	Avg.	83.6	75.5	–.–	–.–	–.–	–.–	–.–
1982	Avg.	89.0	83.7	–.–	–.–	–.–	–.–	–.–
1983	Avg.	92.1	88.5	17.22	14.86	14.18	10.67	11.09
1984	Avg.	96.3	92.4	17.89	15.85	14.97	11.11	11.68
1985	Avg.	99.0	96.0	18.53	16.47	15.56	11.85	12.12
1986	Avg.	100.0	100.0	19.38	16.70	15.76	12.28	12.58
1987	Avg.	102.8	104.4	20.12	17.15	16.11	12.58	13.20
1988	Avg.	107.2	108.6	20.91	18.51	16.95	13.17	13.77
1989	Avg.	109.4	114.0	21.97	20.02	18.41	13.71	14.16
1990	Avg.	109.7	119.4	22.90	20.93	19.12	14.62	15.28
Jan	1990	108.7	116.9	21.88	20.39	19.03	13.99	14.78
Feb	1990	109.5	117.6	22.51	20.63	19.14	14.49	15.03
Mar	1990	109.3	118.0	22.52	20.75	19.17	14.99	15.07
Apr	1990	109.1	118.1	23.17	21.20	19.46	14.83	14.93
May	1990	109.6	118.7	23.28	20.55	19.01	14.71	15.06
June	1990	109.4	119.2	21.85	20.63	18.96	14.69	15.05
July	1990	109.1	119.8	20.92	20.18	18.66	14.34	15.20
Aug	1990	109.3	119.8	23.88	20.51	18.59	14.50	15.33
Sept	1990	110.2	120.2	24.41	21.19	18.94	14.48	15.63
Oct	1990	110.6	121.2	23.11	21.39	19.12	14.78	15.59
Nov	1990	110.9	121.9	23.38	21.83	19.48	14.93	15.73
Dec	1990	111.0	121.8	23.90	21.89	19.88	14.7	16.01
Jan	1991	111.1	125.0	23.79	21.79	19.78	14.66	15.89
Feb	1991	110.6	125.0	25.23	22.45	20.13	14.63	16.10
Mar	1991	109.8	125.5	24.19	22.22	20.27	15.21	16.47
Apr	1991	109.1	125.5	24.77	22.50	20.31	14.63	16.64
May	1991	108.6	126.1	24.38	22.17	20.25	15.05	16.55
June	1991	108.5	126.7	23.58	22.13	19.90	14.65	16.51
July	1991	108.2	126.8	24.70	22.33	19.93	14.56	16.36
Aug	1991	107.8	126.9	23.78 R	22.01 R	20.00 R	14.62 R	16.24 P
Sept	1991	107.6	126.7	24.23 P	22.28 P	20.49 P	14.82 P	16.36 P
Oct	1991	107.6	126.5	–.–	–.–	–.–	–.–	–.–

P = Preliminary **R** = Revised since last month

[1] Statistics Canada, Prices Division, Ottawa: "Industry Price Indexes" (Catalogue 62-011). Indexes for the most recent six months shown are subject to revision. This category was formerly known as "Manufacturing." Monthly data for the period 1967 to 1990 is found in Report 278.

[2] New Base Year of 1986 as of Report 266. Previous Base Year was 1981.

[3] New Base Year of 1986 as of Report 264. Previous Base Year was 1981.

[4] Statistics Canada, Labour Division, Employment and Payrolls Section, Ottawa: "Employment, Earnings and Hours." Monthly data for the period 1983 to 1990 is found in Report 278.

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South Africa

		Average Declared Working Costs per Metric Ton of Gold Ore Milled [1] (Rand)	Tonnage-Weighted Index of Average Working Costs per Metric Ton of Gold Ore Milled [2] (March 1982 = 100)	Consumer Price Index [3] (1990 = 100)	Production Price Index All Groups [4] (1985 = 100)	Total Employment in Mining and Quarrying [5]	Total Salaries and Wages in Mining and Quarrying [5] (1,000 Rand)
							Annual Total [6]
1980	Avg.	35.50	—	25.5	55.2	709,042	2,237,689
1981	Avg.	41.87	—	29.4	62.7	722,918	2,756,928
1982	Avg.	47.23	103.9	33.7	71.4	702,041	3,181,584
1983	Avg.	51.88	115.0	37.8	79.0	700,901	3,563,282
1984	Avg.	58.95	130.3	42.2	85.6	711,511	4,134,390
1985	Avg.	68.70	151.7	49.1	100.0	724,587	4,778,612
1986	Avg.	80.18	177.9	58.2	119.6	756,637	5,767,950
1987	Avg.	95.01	223.1	67.6	136.2	751,864	6,911,395
1988	Avg.	106.69	241.1	76.2	154.1	705,355	7,774,054
1989	Avg.	116.65	273.0	87.4	177.5	700,360	8,833,934
1990	Avg.	129.37	305.3	100.0	198.9	677,742	10,193,209
							Monthly Total
Jan	1990	—	—	94.2	188.9	688,837	801,616
Feb	1990	—	—	94.8	190.3	674,026	767,274
Mar	1990	126.74	296.3	96.4	190.8	704,660	780,614
Apr	1990	—	—	97.3	194.1	696,107	810,474
May	1990	—	—	98.3	196.6	613,527	719,191
June	1990	128.25	299.87	99.0	197.2	676,621	841,165
July	1990	—	—	99.7	197.3	697,242	913,177
Aug	1990	—	—	101.3	199.4	686,385	902,392
Sept	1990	129.46	312.55	102.9	202.2	689,317	922,454
Oct	1990	—	—	103.6	205.5	676,833	882,603
Nov	1990	—	—	105.8	212.7	669,198	909,418
Dec	1990	133.02	312.37	106.5	212.0	660,151	942,831
Jan	1991	—	—	107.7	216.1	648,944	935,839
Feb	1991	—	—	109.0	216.9	650,948	893,373
Mar	1991	137.66	323.82	110.0	215.3	651,843	924,930
Apr	1991	—	—	111.5	216.5	639,939	887,722
May	1991	—	—	113.2	218.4	630,481	887,107
June	1991	134.65	317.23	114.0	219.3	653,134	890,595
July	1991	—	—	115.5	221.2	637,581	878,147
Aug	1991	—	—	117.1	222.8	—	—
Sept	1991	137.11	329.05	118.7	225.2	—	—
Oct	1991	—	—	121.0	—	—	—

P = Preliminary **R** = Revised since last month

[1] Chamber of Mines of South Africa, Johannesburg: "Analysis of Working Results," published quarterly. Historical Data by month appears in Report 278.

[2] Page 16 of Report 178 contains description and calculation of index.

[3] Central Statistical Service, Pretoria: All income groups-weighted average. Historical Data by month appears in Report 278.

[4] Central Statistical Service, Pretoria: All commodities for consumption in South Africa.

[5] Central Statistical Service, Pretoria: Historical Data by month appears in Report 236.

[6] Annual total is shown, rather than monthly average, for indicated year.

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GOVERNMENT STATISTICS

United States

		Producer Price Index [1]		Consumer Price Index [2]	GNP Implicit Price Deflator [3]	Gross Average Hourly Earnings of Production or Non-supervisory Workers (US$) [4]			
		Industrial Commodities (1982 = 100)	All Commodities (1982 = 100)	(1982-1984 = 100)	(1982 = 100)	Metal Mining (SIC 10)	Primary Non-ferrous Metals (SIC 333)	Chemicals and Allied Products (SIC 28)	Electric and Electronic Equipment (SIC 36)
1980	Avg.	88.0	89.8	82.4	85.7	10.26	10.63	8.31	6.94
1981	Avg.	97.4	98.0	90.9	94.0	11.55	11.98	9.12	7.62
1982	Avg.	100.0	100.0	96.5	100.0	12.31	12.93	9.96	8.21
1983	Avg.	101.1	101.3	99.6	103.9	12.58	13.43	10.58	8.66
1984	Avg.	103.3	103.7	103.9	107.7	13.05	13.43	11.07	9.04
1985	Avg.	103.7	103.2	107.6	110.9	13.38	13.74	11.57	9.46
1986	Avg.	100.0	100.2	109.6	113.9	12.46	13.48	11.98	9.65
1987	Avg.	102.6	102.8	113.6	117.7	12.52	12.98	12.37	9.88
1988	Avg.	106.3	106.9	118.3	121.3	13.24	13.26	12.71	9.79
1989	Avg.	111.6	112.2	124.0	126.3	13.59	13.72	13.09	10.05
1990	Avg.	115.8	116.3	130.7	131.5	14.10	14.36	13.54	10.32
Jan	1990	114.1	114.9	127.4	—	13.69	13.95	13.34	10.13
Feb	1990	113.6	114.4	128.0	—	13.70	13.99	13.27	10.16
Mar	1990	113.2	114.2	128.7	129.5	13.80	14.04	13.34	10.17
Apr	1990	113.2	114.1	128.9	—	13.92	14.30	13.53	10.17
May	1990	113.5	114.6	129.2	—	13.96	–14.16	13.46	10.22
June	1990	113.2	114.3	129.9	131.0	14.00	14.31	13.51	10.27
July	1990	113.4	114.5	130.4	—	14.29	14.49	13.58	10.34
Aug	1990	115.9	116.5	131.6	—	14.27	14.60	13.57	10.33
Sept	1990	118.4	118.4	132.7	132.2	14.41	14.48	13.62	10.42
Oct	1990	121.4	120.8	133.5	—	14.43	14.58	13.72	10.47
Nov	1990	120.7	120.1	133.8	—	14.34	14.73	13.73	10.53
Dec	1990	119.0	118.7	133.8	133.1	14.39	14.69	13.75	10.57
Jan	1991	119.3	119.0	134.6	—	14.73	14.63	13.85	10.60
Feb	1991	117.2	117.2	134.8	—	14.80	14.55	13.81	10.59
Mar	1991	115.6	116.1	135.0	134.8	14.93	14.55	13.85	10.55
Apr	1991	115.6	116.0	135.2	—	14.85	14.56	13.96	10.63
May	1991	116.1	116.5	135.6	—	14.79	14.52	14.01	10.66
June	1991	116.1 R	116.4 R	136.0	136.1	14.88	14.51	14.05	10.74
July	1991	116.0	116.0	136.2	—	15.09	14.56	14.16	10.77
Aug	1991	116.4	116.2	136.6	—	14.82 R	14.64 R	14.06 R	10.78
Sept	1991	116.2	116.0	137.2	136.9	15.06 P	14.60 P	14.22 R	10.85 R
Oct	1991	116.6	116.4	137.4	—	—.—	—.—	14.34 P	10.82 P

P = Preliminary **R** = Revised since last month

[1] US Bureau of Labor Statistics, Washington, DC: "Producer Prices and Price Indexes," (formerly "Wholesale Prices and Price Indexes"). Producer Price Indexes are revised four months after they are first released to reflect the availability of late reports and corrections by respondents. Historical data is presented in Report 278.

[2] US Bureau of Labor Statistics, Washington, DC: Consumer Price Index for All Urban Consumers, US City Average, All Items. Historical data is presented in Report 278.

[3] US Department of Commerce, Washington, DC: Bureau of Economic Analysis, National Income and Wealth Division: "Survey of Current Business." The GNP Implicit Price Deflator is published quarterly, and seasonally adjusted. Historical data is presented in Report 278.

[4] US Bureau of Labor Statistics, Washington, DC: "Employment and Earnings." All data based on 1972 revision of SIC Manual. Historical data is presented in Report 278.

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Volume and Price of Uranium Deliveries To The European Community [1]

— Compiled from data published by the Euratom Supply Agency —

Year	Volume of Deliveries to the EC [2] (MTU)	Percentage of Deliveries Made Under Spot Contracts	Medium or Long-Term Contracts [3] Average Price		Spot Contracts [3] Average Price	
			in ECU per pound U_3O_8	in US Dollars per pound U_3O_8	in ECU per pound U_3O_8	in US Dollars per pound U_3O_8
1977	n/a	n/a	n/a	n/a	n/a	$41.00
1978	n/a	n/a	n/a	n/a	n/a	$43.00
1979	10,000	n/a	n/a	n/a	n/a	$44.50
1980	8,600	n/a	n/a	$36.00	n/a	$35.00
1981	13,000	less than 10	n/a	$33.25	n/a	$28.00
1982	12,500	less than 10	ECU 32.25	$32.00	ECU 24.25	$24.00
1983	13,500	less than 10	ECU 34.75	$31.00	ECU 26.00	$23.25
1984	11,000	less than 10	ECU 37.75	$29.75	ECU 24.50	$19.25
1985	11,000	11.5	ECU 38.00	$29.00	ECU 19.50	$15.00
1986	12,000	9.5	ECU 31.50	$31.00	ECU 18.00	$17.75
1987	14,000	17.0	ECU 28.25	$32.50	ECU 15.00	$17.25
1988	12,500	4.5	ECU 26.92	$31.82	ECU 13.65	$16.13
1989	13,500	11.5	ECU 26.63	$29.35	ECU 11.04	$12.19
1990	12,800	16.7	ECU 23.08	$29.39	ECU 7.60	$ 9.68

P = Preliminary **R** = Revised since last month

[1] The twelve European Community member nations are Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, and the United Kingdom; prior to January 1986, Spain and Portugal were not members of the EEC.

[2] The only deliveries taken into account are those made to final users, namely the electric utilities or their procurement organizations; deliveries to middlemen or fuel cycle companies are not included. The sales between utilities in the Community are also excluded. The quantities covered are those which were entered into accounting records during the year stated.

[3] For deliveries made under medium or long-term contracts (i.e., for which the time between the date of signature and the date of the last delivery exceeds one year) the prices were expressed in seven different currencies. In order to calculate an average price, these prices have been converted into European Currency Units (ECU) and US dollars. The average prices were weighted by quantity and converted on the basis of the average annual exchange rate of the different currencies against the ECU and US dollar. Exchange rates are published by European Communities Statistical Office and the International Monetary Fund.

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GOVERNMENT STATISTICS

US Uranium Marketing Activities Statistics

— Compiled from data published by the US Energy Information Administration [1] —

Year	Total Production (million pounds U_3O_8)	Deliveries to Domestic Utilities From US Suppliers [2] (million pounds U_3O_8)	Average Price of Delivered Uranium [2] ($/lb. U_3O_8)	Quantity of Uranium Imported [3] (million pounds U_3O_8)	Average Price of Imported Uranium ($/lb. U_3O_8)	Quantity of Uranium Exported (million pounds U_3O_8)
1976	25.5	27.6	$16.10	3.6	n/a	1.2
1977	29.9	27.8	$19.75	5.6	n/a	4.0
1978	37.0	31.6	$21.60	5.2	n/a	6.8
1979	37.5	33.0	$23.85	3.0	n/a	6.2
1980	43.7	35.0	$28.15	3.6	$43.10	5.8
1981	38.5	32.6	$34.65	6.6	$32.90	4.4
1982	26.9	23.5	$38.37	17.1	$25.19	6.2
1983	21.2	24.2	$38.21	8.2	$26.16	3.3
1984	14.9	22.5	$32.65	12.5	$21.86	2.2
1985	11.3	21.7	$31.43	11.7	$20.08	5.3
1986	13.5	18.9	$30.01	13.5	$20.07	1.6
1987	13.0	20.8	$27.37	15.1	$19.14	1.0
1988	13.1	17.6	$26.15	15.8	$19.03	3.3
1989	13.8	18.4	$19.56	13.1	$16.75	2.1
1990	8.9	20.5	$15.70	23.7	$12.55	2.0

P = Preliminary **R** = Revised since last month

[1] Sources: 1976-1983: US Department of Energy/Energy Information Administration, *Survey of United States Marketing Activity.*
1984-1990: Energy Information Administration, *Uranium Industry Annual.*

[2] Data for 1976-1981 includes both domestic utilities and agents.

[3] Includes imports by domestic utilities and domestic suppliers.

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